ISSUED EVERY MONDAY AT 456 W. FORT ST., DETROIT 26, MICHIGAN. ESTABLISHED 1926.

AIR CONDITIONING & REFRIGERATION News

THE NEWSPAPER OF THE INDUSTRY

Vol. 62, No. 4, Serial No. 1140 **January 22, 1951** Subscription Price, $5 Per Year

Reentered as second-class matter October 3, 1936 at the post office at Detroit, Michigan, under the Act of March 3, 1879.
Trade Mark Registered U. S. Patent Office. Copyright 1951, by Business News Publishing Co.

INSIDE DOPE

by GEORGE F. TAUBENECK

Story of the Week

"Make a lot of dough out of that thing, I suppose," conversed a customer, pointing toward the grill-and-beer's jukebox.

"Nah, I'm gonna throw it out. Costing me money," growled the barkeep.

"How come?"

"Every night some young fellas drop in here around 11—they're just gettin' out of night classes at the college—and play a record over and over. My best-playin' clients go home."

"Must be a horrible recording. What is it?"

Heavily and wearily, the bartender identified the disc. Title:

"It's Later Than You Think."

Credit Controls Backfire

A few weeks ago, in Detroit, William Rodgers was jailed on a charge of robbing a beer store of $100. In explanation, Rodgers said that he needed more money to buy an automobile. The new higher down payment required by the government had left him a little short.

No comment.

The Customers Always Write

Servel Refrigeration
Concord, N. H.

George:

Knowing your low opinion of the present administration in Washington, I thought you would be interested and amused with the enclosed memo of which I had a copy placed in each employe's pay envelope.

H. E. HUMPHREYS

"The Government requires more withholding taxes taken from your pay. This is to help pay the expenses of our country's effort to keep the world a peaceful place to work in and—in addition—to support the most expensive and extravagant government this country has ever known. This year the U. S. Government will spend more money than the entire cost of World War I or nearly as much as the total cost of World War II. Don't forget—government (benefits) cost a lot of money (your money). Your company, too, is paying more tax for the same purpose."

100 W. Forest Ave.
Detroit 1, Mich.

Editor:

I have been away quite a bit and am just catching up on my reading. Of course, your column "Inside Dope" is usually the first item on the agenda. I was rather interested in the statement on page 6 of the Sept. 25 issue of the subject of "Gyp Patent Medicine." The sentence, and I quote "Most of these nostrums, ballyhooed as 'good for man or beast,' were 80% alcohol, 20% flavor and coloring, and 100% useless."

I think in this case you are guilty of a misstatement as I recall very well in my youth that there were many confirmed patients who kept themselves alive from the use of "Peruna," which I believe came in the category that you mention. The use of this remedy tended to put a great many of them in the pink of condition, at least temporarily. After all, drinking alcohol diluted with pump water was somewhat of a standard drink during the prohibition days.

EDWARD T. KLEE

The Cincinnati Air Conditioning Co.
Cincinnati, Ohio

Editor:

The following "dope" has been lifted from the *Arizona Farmer*.

"The histories say that air conditioning started in India about 1930,

(Concluded on Page 19, Column 1)

350 Heating & Ventilating Show Exhibitors Put '51 Lines on View

PHILADELPHIA—With a record 350 or more exhibitors showing new products and many thousands of contractors expected to be in attendance, the 10th International Heating & Ventilating Exposition opens Monday, Jan. 22, in the Commercial Museum here for a 5-day run, with both manufacturers and contractors looking forward to 1951 to be one of the best years in history.

It would take a national calamity to bring about a major recession in the heating and air conditioning fields. There will be some shortening of the market in residential heating, and certain applications of air conditioning will be restricted, but heating plants are essential to living in most parts of the country, and year-round air conditioning proved its essentiality in a wide variety of applications in World War II. Furthermore, until material shortages or restrictions become more stringent, there should be a brisk market for the general run of commercial air conditioning business.

The Heating & Ventilating Exposition, with exhibits embracing many types of air conditioning equipment, is sponsored by the American Society of Heating & Ventilating Engineers. The ASH&VE is holding its 57th annual meeting simultaneously with the exposition, the convention sessions to be held in the Bellevue-Stratford hotel (convention headquarters) and at Convention Hall (which is adjacent to the Commercial Museum).

The show, which is under the management of the International Exposition Co., of which Charles F. Roth is manager, and Earl K. Stevens associate manager, opens its doors at 2 p.m. on Jan. 22. Show hours are as follows:

Monday, Jan. 22, 2 p.m. to 10 p.m.
Tuesday, Jan. 23, 12 noon to 10 p.m.
Wednesday, Jan. 24, 12 noon to 10 p.m.
Thursday, Jan. 25, 12 noon to 10 p.m.
Friday, Jan. 26, 12 noon to 6 p.m.

(The NEWS will maintain a booth—space No. 932—at the Exposition and will distribute free copies of the Refrigeration and Air Conditioning Directory to all who register at the booth.)

Admission is by registration only. Those who have not filled out advance registration cards must have a business card, letterhead, or some other means of identifying themselves as persons concerned with the purchase, installation, or use of heating, ventilating, or air conditioning equipment.

Registration for the ASH&VE convention starts on Sunday, Jan. 21, and continues through Thursday, the

(Concluded on Page 34, Column 1)

Commercial Bldg. Ban, Exemption Details Outlined

WASHINGTON, D. C.—No new construction of a broad variety of commercial buildings including retail stores, restaurants, and offices will be permitted until Feb. 15, the National Production Authority has ruled.

After that date, specific authority from NPA will be required to start a building. This authorization will be granted, the agency indicated, only if the structure directly or indirectly furthers the national defense effort, or is essential to maintenance of public health, safety, and welfare.

The agency said that in the case of applications for structures that were not directly furthering the defense effort, it would consider the type and quantity of materials on hand and needed for the construction and the effect on the community at large if the authorization were denied.

The immediate ban on construction, it was pointed out, affects only "starts" and not buildings already under construction. Only in emerg-

(Concluded on Back Page, Column 1)

What's the Score In Washington As of Now?

Bigger Excises, More Curbs Coming, But Money Must Be Voted First, Taubeneck Finds

By George F. Taubeneck

(Editor George Taubeneck has been in Washington with a group of business paper editors interviewing top government officials, and this story is a report of his finding on government plans for production, controls, and taxes.)

WASHINGTON, D. C., Jan. 18—In our industry it is said that "nothing happens until someone makes a sale." In Washington, nothing happens until Congress appropriates the money and decides who is going to pay the taxes and how much. That is why the Defense Program seems to be dragging at this moment.

Big topic of discussion here is what shape the new Tax Bill will take. After a series of informal discussions with Senator Taft, Senator George (chairman of the Joint Committee on Internal Revenue), Leon Keysterling (chief economic advisor to the President), Michael Disalle (director of price stabilization), and other government leaders, the writer presents these conjectures:

1. Income Taxes will be raised sharply in the lower brackets. (That's where the money is.)
2. Manufacturers Excise Taxes will spread to almost everything that people can possibly live without. (Excise taxes are easier to collect and police than retail sales taxes.)
3. The corporation excess profits tax will rise to a confiscatory point. (This is deemed politically necessary because of the heavier taxes on consumers and personal incomes in the lower brackets.)

Right now Defense spending takes about 7% of our total national pro-

(Concluded on Page 4, Column 5)

St. Louis Contractors To Finance School

ST. LOUIS—The local unit of the Heating, Piping, and Air Conditioning Contractors Association has agreed to pay an amount equal to 5% of their gross payroll for straight time to support an apprentice training school for the St. Louis Steamfitters Union.

The agreement was made recently when the steamfitters asked for the school in lieu of the usual welfare provisions in their contracts with the contractors.

Lawrence Callanan, business manager for the union, said the proposed school would teach refrigeration, air conditioning, and work with such metals as aluminum, stainless steel, and brass, in addition to such other subjects as welding, blueprint reading, and drafting.

Callanan estimated that the contractors would put about $150,000 per year into the school and it would

(Concluded on Page 35, Column 5)

Wm. Shipley, York Chairman, Is Dead

BAYPORT, L. I.—William S. Shipley, chairman of the board of York Corp., and one of the outstanding figures in the development of the refrigeration and air conditioning industry, died suddenly Jan. 13 at his home here. He was 71 years old.

Shipley had been active with the York concern for more than 50 years, including 10 years as president and another 10 as chairman of the

(Concluded on Page 41, Column 5)

Dallas Conference Opens on Jan. 26

DALLAS—Sixty-one manufacturers will have educational exhibits at the southwestern refrigeration and air conditioning educational exhibit and conference to be held here on Jan. 26, 27, and 28, F. C. Coggin,

(Concluded on Back Page, Column 4)

Universal Cooler Appoints Pendergast Sales Director

MARION, Ohio—Thomas S. Pendergast has been named director of sales for the Universal Cooler Div. of Tecumseh Products Co. In taking over this position, he returns to an organization with which he had been associated for some 20 years.

Pendergast's connection with the refrigeration industry dates back to 1922 when he started with Kold King Mfg. Co. When Kold King was purchased by General Necessities Corp. of Detroit, he became chief engineer of that company.

In 1931, General Necessities' refrigeration operation was purchased by Universal Cooler Corp. and Pendergast was made sales manager,

(Concluded on Page 41, Column 1)

U. S. Wins First Court Action on Reg. W

COLUMBUS, Ohio—In the first case taken to the courts since Regulation W was revived, a judgment against a Columbus automobile dealer was obtained Jan. 18 in the U. S. District Court here by the board of governors of the Federal Reserve System.

The judgment enjoins 5th Avenue Motors, Inc., Harold F. Pritchard, president, and O. George Ezzo, secretary-treasurer of the firm, "from further violations of Regulation W and compels compliance with said regulation," the board stated.

An investigation was instituted by the board after "having received reports from the Federal Reserve Bank of Cleveland the 5th Avenue Motors appeared to be selling used cars on terms which violated Regulation W," it was explained.

The investigation was conducted

(Concluded on Page 4, Column 1)

G-E Wins Macy Suit, But Gets Warning

NEW YORK CITY — A "conditional" permanent injunction was recently granted to the General Electric Co. to restrain the R. H. Macy Co. from selling G-E products at less than fair traded prices.

The injunction was handed down by State Supreme Court Justice Henry Clay Greenberg here, who, in so doing, outlined five "certain basic essentials" that a manufacturer should follow in enforcing New York state fair trade laws.

In his decision to grant the permanent injunction, Justice Greenberg pointed out that Macy's action was taken to force General Electric to either effectively enforce its fair

(Concluded on Page 41, Column 2)

IN THIS ISSUE *For The Man Interested In Air Conditioning*

Clary Sounds Optimistic Note at NARDA Meeting

By John O. Sweet

CHICAGO—What's ahead for the appliance dealer in 1951 and what can he do about it?

That was the big question on the minds of the more than 350 retailers who gathered at the Stevens hotel here Jan. 14-17 for the annual convention of the National Appliance & Radio Dealers Association. Here are some of the answers they got:

All speakers agreed that it was impossible to present a clear picture of the possibilities for 1951 because prospects vary with the day's headlines. But H. L. Clary, vice president in charge of sales for Norge, said he couldn't share the pessimism of those who have predicted that appliance production might be terminated or cut 50 to 70% by mid-year.

Clary acknowledged that production in 1951 can't possibly equal the 1950 levels. However, he added, it's entirely possible that dealers will get more merchandise than they expect.

The key factor in determining future output, he pointed out, is the government's stockpiling project. He

(Concluded on Page 11, Column 4)

'Warning Stunt': *Ad Telling Prospects Not To Air Condition Unless It Will Prove Profitable Prompts Many To Act*

WASHINGTON, D. C. — Warning businessmen in screaming newspaper headlines "Don't buy air conditioning unless profitable" is a clever stunt which has helped Abbott Refrigeration Co., Inc., here, to sell package store conditioners.

The stunt was developed to sharpen the interest of "small shopkeepers" who have proven the company's best market for package coolers for the past three years. Designed to insure readership by such businessmen, the novel "warning" is circulated by the firm in actual newspaper advertisements, as well as in direct mail, which "blankets" in turn, all retailers in particular retail fields, several times per year.

Under the "warning stunt" retail storekeepers were advised—

"For years merchants have made decisions to improve their store, offices, and plants, because of high pressure sales talks, or attractive eye-catching gadgets, without first making a profit analysis. Air conditioners have, to a large extent, been bought in the same way . . . along with the summer slump, merchants making hasty decisions to bring customers into the store, and to make life more comfortable. There is nothing wrong with that kind of thinking . . . but it doesn't go far enough and it may be very costly. Too many merchants have been suckers. . . . Air conditioning is a long term, profit-making investment that requires a careful analysis. Some stores *shouldn't* have air conditioning!

"It has come to our attention that for the first time there is such an analysis service available. Furnished with no obligation to the merchant, we offer an analysis service utilizing data from some of the world's largest organizations. From this, the merchant can determine how much profit to expect from air conditioning . . . how much improvement in efficiency and sales.

"This splendid service is available to every Washington businessman by calling the Abbott Refrigeration Co., Inc. There is no obligation, a trained expert will analyze and determine whether or not the business needs air conditioning. By using this valuable service, the merchant knows if it will be a profitable investment . . . he doesn't buy a pig in a poke . . . doesn't buy air conditioning for his personal comfort alone. He only buys air conditioning if the profit from air conditioning is something he cannot afford to lose."

The dealer's experience has been that almost every businessman who reads this advertisement does some "mighty tall thinking." If his business could possibly make more profit with air conditioning installed, he feels he should know about it. Therefore, each advertisement and every direct-mail piece sent out with this message has shown a much higher response, than any other type of "stunt showmanship" the first has yet used.

Another program which has helped to sell many package coolers to dentists, doctors, homeowners, etc., is offering the choice of 15 different colors. After the prospect has been demonstrated a cooler, and likes the comfort it offers, he may choose from a list of colors similar to those offered by automobile dealers.

The actual refinishing is done by a highly-qualified Washington automobile dealership, who sands down the old finish, applies the new color, with several coats baked on, runs the cooler through an infrared ray oven to insure a permanent, hard finish, and returns the unit to the dealer, polished, and an asset to any office.

Fedders Runs 12-Page Promotion

NEW YORK CITY — Fedders-Quigan Corp. will publish in the January issue of *Architectural Record* the largest single advertisement ever carried by that magazine, it was announced by F. W. Dodge Corp., publisher of the magazine.

The Horace A. Laney agency placed this advertising. The insert will comprise 12 pages in two colors with illustrations, describing the entire Fedders line of unit heaters.

Contractors Name Brownlee

ATLANTA—Frank Player, president of the Atlanta chapter of the Heating, Piping & Air Conditioning Contractors, has announced the appointment of C. V. Brownlee as manager of the chapter office.

Brownlee is a native Atlantan, and is an alumnus of Georgia Tech. He was formerly secretary-treasurer of Atlanta Laundries, Inc.

This Commercial Dealer's 'Lifetime Service Warranty' Shows What One Policy Includes

WASHINGTON, D. C.—What does a lifetime refrigeration service warranty offer to the customer?

A good example of such an arrangment is provided in the "Lifetime Free Service Certificate" used by Valmart-Washington, Inc., commercial dealer, here.

The company's certificate is divided into three parts. The first is the labor warranty, the second a four-year replacement contract on sealed units, and the third a one-year parts warranty.

The labor warranty certifies that "for the lifetime of the equipment we will render free service for the installation of any parts which prove to be defective." It adds, "This warranty does not apply to the interior or exterior finishes of the equipment nor to the refrigerant charge."

The second section reads as follows:

"In addition to the above lifetime free service warranty, on equipment containing hermetically sealed units, Valmart-Washington, Inc. agrees to replace free of cost, including transportation charges both ways, to and from the factory, to the original purchaser at any time during the four years next following the expiration of the above one-year warranty, the hermetically sealed-in unit in which defects in material or workmanship become manifest, under normal conditions of use and service, whereby it fails and cannot be made to operate and which our examination shall disclose to be thus defective.

"Our obligation hereunder being strictly limited to replacing such parts with like parts or parts of similar design or its equal in capacity."

The one-year parts warranty states:

"We further warrant to the original purchaser of our equipment, identified by a serial number entered on this warranty certificate to be free from defects in material and workmanship under normal use and service.

"For a period of one (1) year from the date hereof, we will repair or replace any parts which, upon our inspection and to our satisfaction, prove to be defective free of cost to the original purchaser.

"This warranty shall not apply to any refrigeration equipment which has been subject to misuse, neglect, alteration, or accident, nor to any damage caused by flood, fire, or acts of God.

"Removal, alteration, or effacement of the serial number of any refrigeration or equipment unit shall release the Valmart-Washington, Inc. of all obligation under this warranty.

"The term 'Original Purchaser' as used in this warranty and four-year replacement contract shall be deemed to mean that person, firm, association, or corporation for whom the equipment of the serial number given below is originally installed.

"This warranty is in lieu of all other warranties, expressed or implied. No representative or other person is authorized or permitted to make any guarantee or to assume for us any liability not strictly in accordance with the terms as shown in this warranty certificate."

Heating Contractors Ask Syracuse Licensing Law

SYRACUSE, N. Y.—Heating contractors here urged Mayor Corcoran to approve a proposed ordinance requiring persons installing or servicing warm air equipment to obtain a master warm air heating contractor's license.

Hilbert Greene, an attorney, led a delegation to the Mayor's office and submitted the tentative ordinance.

The proposed measure would establish the license and a board of heating examiners to be named by the mayor. Members of the board would be individuals actively engaged in the heating business.

Fee for the license would be $50. A charge of $2.50 would be made for applications, and licenses would be required to present a $1,000 bond.

Nebraska Farmers Advised To Refrigerate Weedicides

LINCOLN, Neb.—Farmers as well as dealers and distributors have been advised by J. D. Furrer, extension weed specialist at the University of Nebraska, to store the weedicides, 2,4-D and 2,4-5T, in a place where the temperature can be held around 32° F.

The university scientist pointed out there is a possibility of some separation among some of the elements in the chemicals when proper storage temperature is not provided, and this might reduce its effectiveness on weeds.

JUST ASK US!

Turn to "What's New" page for free, useful information.

Reg. W Court Case--

(Concluded from Page 1, Column 2)

in court here on Jan. 12 and 13, as authorized by the Defense Production Act of 1950.

"About 35 witnesses were subpoenaed by the board of governors and examined under oath," board states. "In view of the information obtained in the investigation and data furnished by the Federal Reserve Bank of Cleveland, the defendants consented to the entry of the judgment, violation of which would subject them to being cited and punished for contempt of court."

Distributing Firm In East Cuts Dealer List

PHILADELPHIA—S. S. Fretz, Jr., Inc., local distributor of International Harvester appliances, has announced that it will cut its dealer list from 420 to about 300. Current and anticipated shortages that will force the company to restrict its distribution of I-H appliances was given as the reason for the move.

U. S. Court Upholds Price Cut To Meet Competition

WASHINGTON, D. C.—The U. S. Supreme Court recently upheld the seller's right to reduce his prices to meet those of a competitor even if competition is lessened in doing so.

In a case involving the Standard Oil Co. of Indiana, the high court reversed a circuit court decision in a Federal Trade Commission suit against the firm.

The FTC charged Standard Oil with illegally discriminating in favor of certain customers in pricing its products. Standard Oil replied that it reduced its prices to meet a competitor's equally low price. This was the company's only defense.

The Supreme Court decision. was made on a 5 to 3 vote and the majority opinion said, in part:

"We may conclude that Congress meant to permit the natural consequences to follow the seller's action in meeting in good faith a lawful and equally low price of its competitor. . . .

"The heart of our national economic policy long has been faith in the value of competition. It is enough to say that Congress did not seek by the Robinson-Patman Act either to abolish competition or so radically to curtail it that a seller would have no substantial right of self-defense against a competitor's price raid. . . .

"It must have been obvious to Congress that any price reduction to any dealer may always affect competition at that dealer's level, as well as at the dealer's resale level, whether or not the reduction is discriminatory.

"Likewise, it must have been obvious to Congress that any price reductions initiated by a seller's competitor would, if not met by the seller, affect competition at the beneficiary's level or among the beneficiary's customers just as much as if the reductions were met by the seller."

The opinion also pointed out that there has been widespread understanding that under the Robinson-Patman Act, the seller need only prove that his price reduction had been made in good faith to meet a lawful and equally low price of a competitor to have a complete defense against a charge of price discrimination.

'Too Much, Too Soon'

All U. S. Copper Sources Can't Fill Estimated Civil, Defense Needs

WASHINGTON, D. C. — All the known copper deposits available to the United States could not now meet our estimated defense and civilian needs, James Boyd, Defense Minerals Administrator, indicated recently.

Admitting that these estimates were probably on the high side, Boyd declared that "it's better to have too much too soon than too little too late."

Boyd declared that American copper producers have done about all they can to expand existing facilities and left the presumption that the only other way to get sufficient copper for defense needs was to cut into civilian requirements.

Already 300 civilian uses of copper have been limited or banned as of March 1.

Score In Washington--

(Concluded from Page 1, Column 3)

duction. By the end of 1951 it probably will take 18% or more, depending on Russian moves. This contrasts with nearly 50% at the peak of World War II.

Controls are coming on production, prices, and wages; but rationing of consumer goods seems five or six months away. Meat rationing will come first. Longer hours of work are on the docket. Also increased use of labor-saving tools and technology.

Feeling here is that we are in for a long "emergency" state, rather than a short, quick war. The pace is being geared to win a mile run instead of a 100-yard dash. Greater production, therefore, is considered more important than price relief as of now.

Stalin would not care much one way or another, it can be argued, if he received a memo that America had succeeded in price controlling and rationing bananas. But if he learned that we had upped steel production by 20 million tons he might pause before starting anything.

In the meantime higher taxes are counted on to take the steam out of inflation. They are coming quickly, and will apply to all income received since Jan. 1 of this year.

Price Freeze Seen Near After Wilson's Speech

WASHINGTON, D. C. — Defense Mobilization Chief Charles E. Wilson's mention of the need of "hard-anyway and work up to a control in a talk Jan. 17 means that the government is about ready to move for more stringent controls than the voluntary "hold-the-line" measure which has been in effect the past month, most observers believe.

However, it is thought that the government is a long way from having adequate machinery set up to police Federal-sanctioned price controls. But it may order a "freeze" anyway and work up to a control setup later.

If there is a "rollback" in the price-freeze measure, it will probably not go back beyond Jan. 1, according to the feeling here.

Air Conditioning Installation on Porch Solves Space Problem

LAREDO, Tex. — When the management of the Juarez Furniture Store, here, decided to install air conditioning, it was faced with an unusually difficult problem of placing the equipment.

The one-story, corner store building, with a half-balcony in the rear, had no basement or equipment room, and its roof was incapable of supporting either an air conditioning unit or a cooling tower.

Furthermore, the owner opposed diversion of any valuable floor or balcony display space to air conditioning use. The store, however, had a rear porch, with a partial concrete floor, offering a solution to the problem by placing the equipment outside.

The concrete slab was extended and reinforced to support a United States Air Conditioning Corp. 15-ton refrigerated Kooler-aire unit. This packaged unit is completely enclosed and fitted for outdoor installation, and contains a built-in evaporative condenser, eliminating the need for a cooling tower.

The unit was connected simply by ductwork to grilles in the main store area and on the balcony.

The entire installation was carried out without any interruption of normal operation of the store. The concrete slab was poured, the unit was set in place, and the duct, which was fabricated off the job, was hung during non-business hours.

Since the addition of this air conditioning system, the first and only one in a furniture store in Laredo, Jose Juarez, owner, reports that, in spite of a general business decline in this area due to drought and crop failure, his store has enjoyed a substantially increased volume of business.

Juarez noted that customers spend more time in his cooler store, with the result that they make more purchases per visit.

The equipment was installed by M. L. Garza, UsAirco dealer in Laredo.

A MESSAGE TO KELVINATOR RETAILERS

★

from CHARLES T. LAWSON
Vice-President in Charge of Sales
Kelvinator Division, Nash-Kelvinator Corporation

"RIGHT NOW, we of Kelvinator are looking back at the past year with gratification . . . and looking forward with confidence.

"The past twelve months have been good ones for Kelvinator . . . in fact, the best in our history. For, in 1950, American families bought *nearly three-quarters of a million* Kelvinator appliances . . . keeping the demand for our products consistently far ahead of our ability to supply.

"Yet, though the year was a big one in sales, that alone calls for no loud cheering . . . it has been practically *everyone's* biggest year!

"Bigger to us, and far more important, is the fact that Kelvinator's sales record was made under policies which firmly held the retailers' interests high above every other consideration.

"It was by uncompromising refusal to depart from sound principles of selling . . . advertising . . . distribution, that Kelvinator was enabled to deliver so large a measure of product value for the retailer. And every Kelvinator dealer knows what we mean.

"For example, it was dollars conserved by prudent practices and sound marketing methods that made it possible to produce a masterpiece refrigerator of unusually large capacity and superlative quality for Kelvinator retailers to sell at the same price many competitors asked for smaller models.

"Kelvinator dealers profited by this kind of retail-minded thinking . . . as they will continue to profit through the years to come . . . for Kelvinator builds loyal customers and repeat business for Kelvinator dealers by giving more in honest value and unfailing performance year after year.

"We purpose to continue these principles . . . as the soundest means of assuring Kelvinator retailers maximum opportunity, now—and through the years ahead!"

Kelvinator

DIVISION OF NASH-KELVINATOR CORPORATION, DETROIT 32, MICHIGAN

With All the Trimmings

Easter Dinner 'Combination' Triples Range Sales for Dealer

SILVER CREEK, N. Y.—A complete Easter dinner for six persons, and the range to prepare the foods, were the two units of a "combination offer" which sold a heavy extra volume of gas ranges during early Easter for the John Henrich Co., appliance retailer here.

For the stunt, which was advertised three weeks in advance of Easter, Hendrich's arranged for wholesale cost supplies of foods with a nearby supermarket, and prepared an appetizing dinner menu.

Included in the dinner were a 12-lb. ham, coffee, sliced pineapple, brown sugar, corn, lettuce, celery, olives, sweet potatoes, butter, rye bread, a quart of milk, dessert, nuts, and "all the trimmings."

The newspaper advertisement showed a cut of a sumptuously-set Easter dinner table with the foods offered by the store. Housewives were urged to purchase the range at $129.50, whereupon the company would not only supply all the foods, but assist in its preparation, if desired.

At the same time, a "banquet dinner" display was set up in the store on a large dinner table at the front of the range section. This appetizing display, viewed by hundreds daily, encouraged a lot of customers "on the fence" about a range purchase to go ahead and buy, according to Hendrichs.

The store also used a series of radio spot announcements, pointing out that "Your Easter dinner worries are over" and outlining the foods offered for the event.

Range sales more than tripled for the 3-week period preceding Easter, and the store's humorous program won a lot of publicity in local newspapers and news commentators.

Solar Heating Bibliography Lists Engineering Papers

NEW YORK CITY — A bibliography on domestic and industrial applications of solar heating has been prepared by the Engineering Societies Library here and is being offered to the trade at $2 per copy.

The bibliography is annotated and contains about 150 references listing the most important English and foreign papers published on the various aspects of solar heating between 1930 and the middle of 1950.

Part I includes general and historical articles as well as papers on various industrial applications such as utilization of solar energy for boilers.

Part II has been devoted to the fields of solar heating of houses by the different methods of storing solar heat, the design and construction of solar-oriented houses, and the design, construction, and use of domestic solar water heating devices.

The bibliography is labeled "ESL Bibliography No. 7." It may be purchased from the Library at 29 W. 39th St., New York 18.

True To Sell Dry Beverage Coolers Through Dealers

ST. LOUIS—True Mfg. Co., with headquarters at 2905 Pine St. here, has announced plans to sell its line of dry beverage coolers through the commercial refrigeration field.

True was organized as a manufacturing concern immediately following the end of World War II and has sold a full line of dry beverage coolers for the past five years.

The company plans to sell to the commercial field mainly through exclusive territorial arrangements.

Bell & Gossett Names Rep.

CHICAGO — Harry V. Witherspoon of Baltimore has been appointed Bell & Gossett Co.'s industrial representative in the Baltimore area, R. E. Moore, vice president of B & G, announced recently.

Witherspoon formerly was in charge of service for the Chrysler Airtemp division for eastern seaboard and maritime installations.

Cook, Not the Refrigerator, Blamed for Food Poisoning

TRENTON, N. J.—Improper refrigeration and faulty cooking are responsible for food poisonings after picnics and church suppers, according to Arthur G. Wigley, food and drug inspector for the New Jersey department of health.

Wigley declared that failure to cook salad ingredients thoroughly before mixing and the use of large containers for storing gravies and custards are culinary crimes.

He said that food should always be cooled in shallow pans and combined for transportation or storage only after thorough chilling.

Any food stored in large containers requires a long time to cool, and may spoil while in the refrigerator.

New Fedders Distributor

CHARLOTTE, N. C. — Southern Appliances, Inc., here, has succeeded Allison-Erwin Co., as distributor in the two Carolinas for Fedders-Quigan room-air conditioners.

List of Firms Exhibiting at the Heating, Ventilating Show

Exhibitor	*Space*
A-J Mfg. Co.	436
Ace Engineering Co.	422
Acme Industries, Inc.	26 & 414
Adelta Mfg. Co., Inc.	343
Air Conditioning & Refrigeration News	932
Air Control Products, Inc.	78
Air Controls, Inc., Div. of The Cleveland Heater Co.	401
Air Devices, Inc.	106
Air-Maze Corp.	610
Air & Refrigeration Corp.	33
AIRTEMP	
Airtemp Div., Chrysler Corp.	301
Airtherm Mfg. Co.	233
Aldrich Co.	330-332
Allis-Chalmers Mfg. Co.	917
American Air Filter Co., Inc.	902-906
American Blower Corp.	A
American Gas Association	518
American Hydrovac, Pump Div. of Pitz Foundry, Inc.	47
American Iron & Steel Institute, Committee on Steel Pipe Research	339
American Radiator & Standard Sanitary Corp.	A & B
American Society of Heating & Ventilating Engineers	88
Ames Iron Works	22 & 43
Anderson Co., The V. D.	630
Anemostat Corp. of America	600
Anthracite Institute	147 & 150
Appleman Art Glass Works	448
April Showers Co., Inc.	727
Armstrong Cork Co.	338-340
Armstrong Furnace Co.	122-126
Armstrong Machine Works	205
Armstrong Products Corp.	636-638
Armstrong Steam Trap Co.	205
Atlantic Pipebending & Fabricating Corp.	646
Auer Register Co.	847
Au-Temp-Co Corp.	46
Automatic Devices Co., Inc.	713
Automatic Firing Corp.	19
Automatic Humidifier Co.	52-54
A-P Controls Corp.	213
Avco Mfg. Corp., Lycoming-Spencer Div.	148
Axeman-Anderson Co.	147 & 150
Bacharach Industrial Instrument Co.	219
BAKER	
Baker Refrigeration Corp.	643
Baltimore Aircoil Co., Inc.	621
Barber-Colman Co.	247
Bard Mfg. Co., The	836-840
Barnes & Jones, Inc.	83
Beaton & Cadwell Mfg. Co.	328
Bell & Gossett Co.	231
Binks Mfg. Co.	635-639
Boston Machine Works Co.	843
Brookside Products Co., The	421
Brown Products Co.	640-642
Brundage Co., The	62
Bryant Heater Div., Affiliated Gas Equipment, Inc.	2-4
Buffalo Forge Co.	79
Builders Iron Foundry	55
Builders-Providence, Inc.	55
Bundy Tubing Co.	325
Burnham Corp., Boiler Div.	223-225-227
Bush Mfg. Co., The	817
Carey Mfg. Co., The Philip	838
Carrier Corp.	605-607
Century Electric Co.	543
Chace Co., W. M.	322-324
Char-Cole Mfg. Co.	64
Chelsea Fan & Blower Co., Inc.	406
Chicago Blower Corp.	606
Chicago Pump Co.	534
Clarage Fan Co.	813
Clayton & Lambert Mfg. Co.	744
C-O-Two Fire Equipment Co.	342-344
Coal-O-Matic Co.	147 & 150
Coleman Co., Inc., The	71-73
Cole-Sewell Engineering Co.	620
Columbia Burner Co., The	347
Combustion Control Corp.	69
Combustioneer Div., The Steel Products Engineering Co.	135
Commercial Filters Corp.	622
Condensation Engineering Corp.	821
Congress Drives Div., Tann Corp.	21
CONNOR	
Connor Engineering Corp., W. B.	831
Continental Air Filters, Inc.	218
Copeland Refrigeration Corp.	85
Corbmann Bros.	617
Crane Co.	305-307-309
Crotty Mfg. Co.	134
Curtis Refrigerating Machine Div., Curtis Mfg. Co.	8
Corn Exchange National Bank & Trust Co.	226
DeBothezat Fans Div., American Machine & Metals, Inc.	440
Detroit Lubricator Co.	734 & B
Detroit Regulator Co.	807
Devices, Inc.	75
Dodge Corp., F. W.	214
Dole Refrigerating Co.	806
Dole Valve Co., The	405
Dollinger Corp.	408
Domestic Engineering Co.	418
Doyle Vacuum Cleaner Co.	748
Dravo Corp.	732
Dunham Co., C. A.	718-722
Durant Insulated Pipe Co.	717
Dwyer Mfg. Co., F. W.	44
Eagan Co., Inc., Walter H.	723
Eastern Foundry Co., The	314
Eckhart Mfg. Co., Inc.	413
Econo Products Co.	721
Electric Furnace-Man, Inc.	147 & 150
Emerson Electric Mfg. Co., The	317
Empire Stove Co.	60
Fairbanks Co., The	933
Fairbanks, Morse & Co.	539
Farr Co.	18
Fasco Industries, Inc.	334
FEDDERS-QUIGAN	
Fedders-Quigan Corp.	42 & 63
Federal Boiler Co., Inc.	810
Field Control Div., H. D. Conkey & Co.	708
Fitzgibbons Boiler Co., Inc.	513
Frick Co.	92
Frigidaire Div., General Motors Corp.	68
Fulton Sylphon Div., Robertshaw-Fulton Controls Co.	429-431
Gannon Co., Inc., The Russell R.	938

Heating, Ventilating Show Exhibitors--

Separate Ductwork Systems Cool Clinic's Patients by Day and Doctors by Night

LITTLE ROCK, Ark.—An unusual application of comfort air conditioning has been developed in the Missouri Pacific hospital here, through installing two complete systems of ductwork, at opposite sides of the building, to be supplied by a single refrigeration compressor and mixing chamber.

The genital-urinary clinic and X-ray rooms of the Little Rock hospital are comfort cooled by two 5-ton Curtis compressors, which operate in a progressive-stage system. The clinic and the X-ray rooms, under normal circumstances are kept comfortably cool by one 5-hp. compressor unit; however, when the load becomes "over the peak" the second 5-ton unit is cut in to boost refrigerated capacity.

Some 6,500 c.f.m. of cooled air is circulated through the clinics, with 40% outside air, through daily operating hours from 8:00 a.m. to 5:00 p.m.

DOCTORS GET A BREAK

During the evening, however, by means of a manual switch and a damper, the cooling capacity of the air conditioning system is switched out of the clinic area, and into a main traveler duct, which carries the air to seven doctors' apartments, on the opposite side of the building.

By thus switching the cooled air, it is possible to keep the physicians' quarters at a cool 80° even during Little Rock's notorious 105° summer temperature, insuring restful sleep for the medical staff. During daylight hospital operating hours, when the physicians, of course, are on duty, there is no attempt at comfort cooling, and the system provides air conditioning only for the clinic.

Except for a few more outlets in the physicians' quarters, the two air conditioning ductwork systems are the same, according to Louis Nachman, head of Nachman & Co., Inc., St. Louis air conditioning contractor who made the installation.

INSTALLED IN ST. LOUIS, TOO

So much success has been developed in the Little Rock installation, that a similar "switch-over" system has been installed in the larger Missouri Pacific hospital at 1755 S. Grand in St. Louis. In this case, 20 tons of air conditioning capacity, which are normally used for cooling the operating and pre-surgery rooms on the south side of the building, are switched after 5:00 o'clock to a 16-bed orthopedic ward on the north side of the hospital, as well as to physicians' quarters in the institution.

One of the chief advantages of this arrangement is the fact that hospital space is at a premium, according to H. J. Mohler, head of the hospital, and thus, by merely by-passing the cooled air from one section of the building to another, the output of the refrigeration system can be directed to the point at which it is most needed.

COLD PIPE

Basic Refrigeration Solves Chemical Firm's Woes

ATLANTA — By providing a refrigerated sleeve for a 60-ft. steel pipe through which volatile liquids are siphoned from a tank car to a bottle filling machine in the Mathewson Chemical Co. plant here, Refrigeration Appliances, Inc. solved a baffling problem for the chemical firm.

Mathewson had considerable difficulty in bottling methyl chloride, ammonia, and other volatile liquids.

These chemicals arrive at the plant in tank cars and are immediately bottled for distribution to users.

In any sort of warm weather, it was found that after two thirds of the tank car was emptied, release of pressure and high temperatures tended to gasify the remaining liquid. As a result the pumps used for the bottling process spun aimlessly, pressure increased tremendously, and there was considerable gas blow-off.

An analysis by Gordon L. McWilliams, head of Refrigeration Appliances, Inc., indicated that much of the trouble originated in the 60-ft. steel pipe connecting the tank cars with the bottling unit.

McWilliams' solution was to cool the pipe by wrapping copper coil around it and then jacketing the whole thing with a cork overlay. Through the copper coils he ran 30 gals. of water per minute—water that was chilled to 45° F. or less by a 2-hp. Frick condensing unit and stored in a 150-gal. tank at the upper end of the pipe.

The temperature drop in the chilled pipe did the job, McWilliams said.

INSEPARABLE PALS: That's what you might call Herman Leibowitz and his 15-ton Typhoon air conditioning unit. Leibowitz says he wouldn't be without it. The air conditioning is as important as coffee and ham sandwiches to the restaurant business, he believes.

More Efficiency, More Dough, Less Dirt

That's What Luncheonette Owner Got with One Packaged Unit; He Discovers Cooling Sells a Lot More 'Coffee and Donuts', Too

NEW YORK CITY—"I would no more run a restaurant without air conditioning than without coffee and ham sandwiches. And if I couldn't afford air conditioning, I wouldn't open a restaurant!"

That's the unqualified opinion of Herman Leibowitz, owner of Paul's Coffee Shoppe at 28 West 37th St. in Manhattan.

Leibowitz became convinced of the value of air conditioning after installation of a packaged unit in his luncheonette boosted daily summer volume $150, increased the efficiency of his countermen at least 100% in hot weather, and reduced the time needed for cleaning by 20 minutes a day.

A 15-ton Typhoon unit was placed at the rear of the Coffee Shoppe, with the loss of no booth space whatever. This luncheonette is 18 ft. wide and 95 ft. long. The rear booth space is offset to allow for the kitchen.

Seating capacity is 114, of which 30 are counter stools. Cool air is distributed through a center ceiling duct and six ceiling diffusers. The unit is placed right next to the kitchen exit.

The return air grille has been left off, since Leibowitz plans to install a partition with ornamental grilles in front of the unit. A false ceiling will also be added so that the diffusers will be flush with the ceiling.

"It doesn't hurt to show the unit and ducts," Leibowitz remarked, "but I was planning to remodel anyway, and these changes will give the place a smoother appearance."

But for now, Leibowitz is more than satisfied with the results of his air conditioning installation. His quiet manner contrasts strikingly with the enthusiasm he shows when describing his air conditioning system.

"Frankly," he said, "when I bought this place in 1947, it was in pretty bad shape. Three seasons I went without air conditioning, and I was having trouble making ends meet. I can say without hesitation that during the summer air conditioning brought in over $150 a day in extra business. And that's a lot of coffee and doughnuts!"

IT'S EXPENSIVE, BUT—

Operating expenses for the unit, including an evaporative condenser located in the basement, come to about $800 a year.

"It's a lot of money," observed Leibowitz, "but I don't regret a cent of it."

In fact, he is so convinced of the value of air conditioning that he does not limit his operating time. In the summer, the unit operates at least 12 hours a day. Even though air conditioning engineers know for a fact that such "generous" use of a unit is more efficient than overloading equipment during peak hours, many users are slow to adopt this advice.

No fresh air supply is needed ordinarily for this unit, but occasionally a window near the unit on the back wall will be opened slightly, producing the desired amount.

It's not only higher volume that makes Leibowitz enthusiastic.

"It's a difference of day and night for me, working in here all day," he said. "And it's even more important for the help. They just fold up in the heat. I'd say the efficiency of my countermen has gone up at least 100% during hot weather. They used to get hot and crabby, and disgusted. In New York you can get in an argument easily when you feel like that."

ATTRACTS 'TONEY' TRADE

Most of the trade at Paul's is drawn from offices in the neighborhood, but the luncheonette also serves many shoppers, clerks, buyers, and salesmen from the Fifth Ave. department stores nearby.

"Lots of those people won't eat in a place that's not air conditioned," he noted. "There are enough air conditioned lunch places around that they can take their pick. With this unit in here, I get lots of fashionable women in here all day long. That helps tone up the store, and brings in still more."

As is true throughout New York City, the air around Paul's is often thick with street dirt, smoke, and exhaust.

"I had to change my filters twice this summer," Leibowitz pointed out, "but when I think of the dirt that used to blow in before I put in air conditioning, I wonder how I ever got along without it. I save at least 20 minutes every day on cleaning time, and the place stays spotless."

Use of Cooling Panels Can Help Reduce Load On Air Conditioning

CHICAGO — Cooling panels, even at temperatures of 70° and 80° F., can be of definite value in air conditioning, the Illinois chapter of the American Society of Heating and Ventilating Engineers was told by P. B. Gordon, who heads the ASHVE technical advisory committee on panel heating and cooling and is director and treasurer of Wolff & Munier, Inc.

By itself, he declared, panel cooling will never take over the entire job of cooling a building, but its greatest advantage will be to reduce the cooling load and thus reduce equipment and duct sizes for conventional systems.

Panel cooling will enhance the thermal storage of buildings, directly intercept radiant energy (as from lights), cool a room and affect the comfort relationship by lowering the mean radiant temperature, according to Gordon.

Unless the cooling panels are also used for heating, however, he does not think the savings in equipment sizes would justify their expense, the group was told.

As for panel heating, the type of pipe material and idle tubes do not have any appreciable effect, he indicated. For panels used in connection with plastered ceilings, insulation on the back side of the tubes has very pronounced effects on the down side heat flow, even when the space above the panels is heated.

After explaining why and how the ASHVE panel heating research program was set up and how it is functioning, Gordon described various tests which have been made and others which are still in progress. Contractors and consulting engineers showed keen interest in his report on the progress of panel heating research, particularly in charts which provide design data on radiant heat exchange in buildings.

The data relates panel heat output to panel temperature for radiant heat only, for convected heat only, and for combined heat transfer. Another chart relates total panel heat output for both ceiling and floor panels, to panel surface temperature and the unheated mean radiant temperature.

Bills Would Set Up Bureau To Aid Small Business Survival

MIAMI BEACH, Fla. — A bill, aimed to keep small business alive during the changeover from a civilian to a mobilization economy and to convert such firms into defense production, has been introduced in the U. S. Senate by John J. Sparkman, Democratic senator from Alabama.

Sparkman recently told the National Automobile Dealers Association convention here that he had introduced the legislation under the title of Small Business Defense Plants Act of 1951. He added that Wright Patman, Democrat of Texas, had introduced an identical bill in the House of Representatives.

These bills, he said, would establish an agency to make loans to small companies to finance plant construction or expansion, to help them acquire machinery and materials, and to help them get contracts.

Commenting on the need for such legislation, Sparkman told the automobile dealers:

"It is commonplace that small enterprises are among the earliest casualties in any change from a peacetime economy to an economy geared to war mobilization."

He noted that Congress must "make certain that as many small businesses as possible keep going." But, he added, this will require "careful production planning and a lot of managerial common sense."

He went on:

"Nowhere is the vulnerability of small companies more glaringly revealed than in the current dog-eat-dog scramble for essential materials. For instance, despite capacity production, steel has all but disappeared from the free market.

"If material shortages have forced General Motors to close five assembly plants for a week, Packard and Studebaker to cut back production by 20% this month, and Ford to lay off 13,000 workers, you can imagine what little chance the small operator has to obtain sufficient materials to keep his plant going.

"Meanwhile, it seems that the gray market operator is out to make a quick killing. We know that large tonnages of steel sheet are currently being offered in New York at $350 per ton, a figure which is about $225 a ton higher than it should be.

"Obviously, small business owners cannot stand the strain of such ruinous costs."

Another speaker on the program warned that the United States would be occupied with defense production for a long time and "will be mobilized longer than any previous time in our history."

Accounts Receivable Show Improvement In Chicago Assn. Report

CHICAGO — Despite the large number of changes made in the credit picture from Sept. 1 to Nov. 30, The Chicago Association of Credit Men find that accounts receivable for that quarter were in better condition than those of the preceding quarter.

The association's survey, which covers some 400,000 accounts in all fields, indicates that "the trend is definitely toward improvement," according to J. E. Walsh, president.

The survey showed that 61.9% of all types of accounts reported discounts as compared with 60.2% in the preceding quarter. Only drop in discounts came from accounts selling to retail sources, which dropped from 63.8% in the quarter ending in August to 63.7% in the quarter ending in November.

Wholesale-distributor accounts reported 65.1% discounting as compared with 62.4% in the preceding quarter. Industrial accounts reported 71.8% discounting where 48.7% had been discounting in the previous quarter.

Accounts paying when due fell off from 28.3% to 27.6% in the over-all picture. Among concerns selling to retail sources, 24.4% were paying when due in both quarters.

Wholesale-distributor accounts dropped from 26.8% to 25.7% in this category while industrial accounts fell from 39.5% to 36.4%.

Mfrs. Urged To Keep Geographical Dealer, Distributor Setup

CHICAGO—Hope that major appliance manufacturers would continue to distribute their merchandise fairly through distributors to dealers on a geographical basis so that the interest of consumers throughout the country will be served was expressed recently by the major appliance committee of the National Association of Electrical Distributors.

The committee recently held a two-day meeting at the Drake hotel here to discuss current problems and hear the report presented to the Office of Civilian Requirements of the National Production Authority.

Rome Dealer Names Mgr.

UTICA, N. Y. — Matthew Morgan has been appointed general manager of the Lermans Furniture Co., Rome, N. Y., appliance dealer, it was announced by David Lorman.

Air Cooling Aids Film Finishing

Heat Found To Be Cause of Faulty Developing, Chemical Deterioration, and Labor Turnover

DENVER—Installation of a 5-ton package air conditioning unit in the photo finishing plant of U. S. Drug Co., here, has helped to solve many problems that were proving costly, according to Gordon Lee, general manager.

Undergoing much complaint from dissatisfied customers, and losing many dollars per month in refunding for lost film, in dealing with commercial photo finishers, U. S. Drug Co. built its own photo finishing plant about six years ago, resolving to "handle its own work" from start to finish. Two years ago a completely new $20,000 plant was installed, which features automatic machines throughout, and allows U. S. Drug to handle mail orders from various sections of the United States.

Even though the plant has the best possible equipment, there were still many instances in which films or prints did not develop properly, or chemicals lost their properties too quickly. This was traced to high heat conditions in the confined rooms on the second floor which house the photo laboratory.

After much checking, and desirous of doing away with both complaints of customers who didn't like the end product of their photography, and a high degree of turnover where employes were concerned, Lee installed air conditioning.

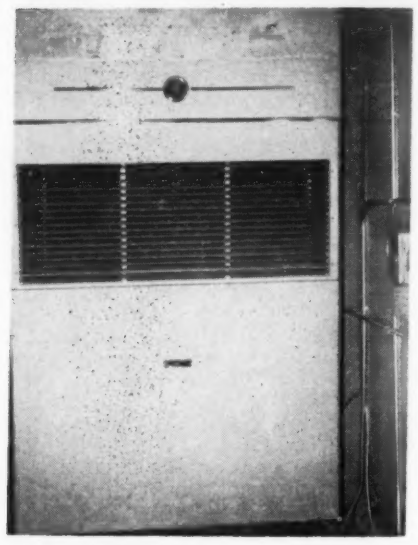
Temperature is now maintained at a smooth over-all 80° F., with humidity added to 50%, found best for film production. There are now no more cases of improperly developed film, streaked negatives or prints, and even more important, employes are staying on the job, according to Lee.

Small ducts distribute the air from the 5-ton package unit evenly through the developing darkroom, print room, washing and sorting room, and the mail order department. During winter months, the refrigeration is cut off, but humidification continues, to give all chemicals and films the ideal developing conditions. "We believe anything that dissatisfies a customer who brings in a roll of film is a serious matter," Lee said. "Therefore, anything which helps to insure good film processing is an absolute must."

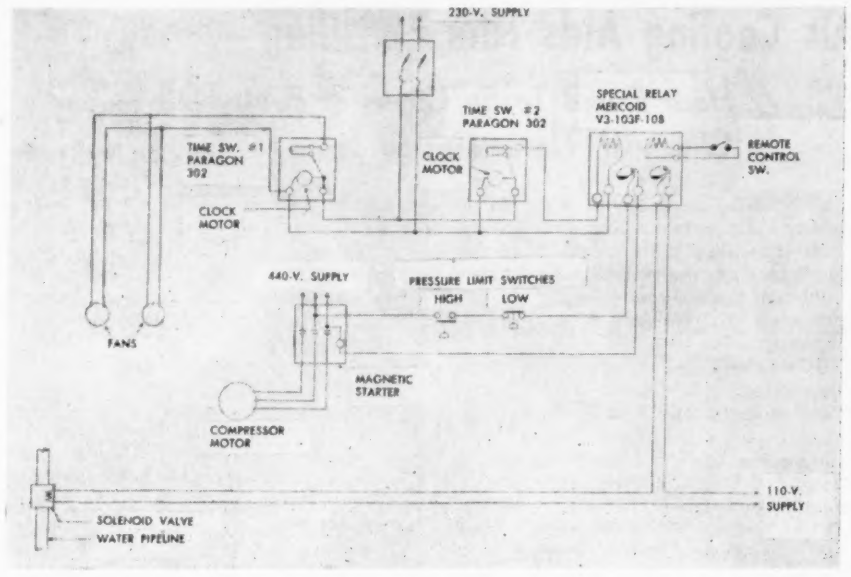
Thor Stops Production of Dishwashers, Combinations

CHICAGO — Thor Corp. has announced that it will no longer make its dishwasher or dishwasher-clothes washer combination.

The move was made to conserve scarce materials, the company said, noting that the scoop in the dishwasher requires about 2½ lbs. of aluminum. The company feels that it can better use this metal in the production of the more essential clothes washer.

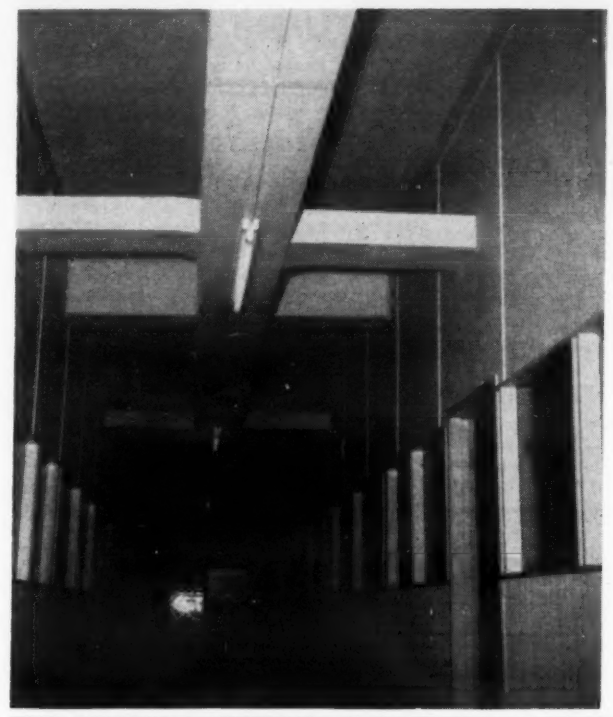


CONDITIONER: This is the 7½-hp. Brunner unit that is cooling 6,000 sq. ft. of office space for Ted Glou, Syracuse parts wholesaler.



CONTROL SYSTEM: This wiring diagram indicates the intricacies of the control system that is used to govern the operation of the air conditioning system and keep costs to a minimum.

* * *



CENTRAL HALLWAY: Down this corridor runs the main supply duct of the system with branch ducts leading off into the various offices and fluorescent lighting on the bottom of the ductwork.

He Cools 6,000 Sq. Ft. with One 7½-Hp. Unit

Ted Glou Connects 11 Partitioned Offices to Central Hallway Duct, Cuts Cooling Load and Costs with Complicated System of Controls

SYRACUSE, N. Y.—The way in which a 7½-ton packaged store air conditioner can be utilized to air condition an entire floor of partitioned-off offices, has been demonstrated in a model installation made in the building owned by Central Service Supply Co. at 647 S. Warren here.

Central Service Supply Co. is a refrigeration and air conditioning parts and supplies wholesaling firm headed by T. I. "Ted" Glou, one of the best-known members of the parts wholesaling fraternity. When Glou bought the two-story, flat-roofed building a couple of years ago he decided to help pay for the investment by finishing off the second floor—which he didn't particularly need for his operations—into a group of offices. Office space was partitioned off on each side of a center corridor extending the length of the rectangularly shaped building. There is 6,000 sq. ft. of floor space on the second floor.

With an excellent downtown location and office space at a premium he quickly filled all the offices. However, because he wanted to improve the property and also make the offices more inviting when the demand might not be so great, and also because of his natural interest in air conditioning, Glou decided to air condition the second floor office spaces.

The Brunner 7½-ton packaged unit was selected for the job, and conditions the 11 offices through ductwork, the main supply duct being connected to the outlet of the conditioner.

Selection of the packaged unit was made because Glou has some ideas on how the flexibility, capacity, and compactness of the packaged unit made it ideally adaptable to such an application, and he was to prove his theories in practice.

The 7½-ton package air conditioner is located in a hallway on the second floor, the hallway being used primarily as an unloading site for a freight elevator. The main supply duct is connected to the top of the conditioner and extends into a main hallway which serves offices on either side.

Branch-off ducts from each side of the main supply duct lead into the walls of the various offices along the hallway. Outlets with 4-way directional grilles are flush with the walls in these offices. In a large office space along the front of the building the main supply duct leads into a smaller one which contains three outlet grilles.

Air is returned through the hallway to the Brunner package conditioner. Doors leading into each office are cut out at the bottom to provide a return area which has the same cubic footage as the discharge grille.

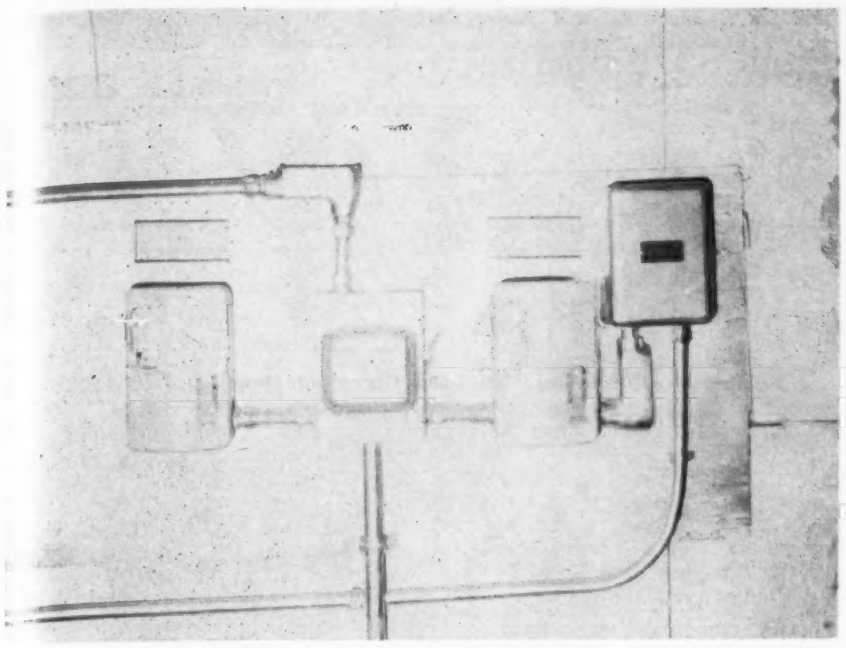
Fresh air is introduced through an 18-in. square opening through the outside wall of the building, the air being carried to the conditioner through a short duct. It is filtered as well as cooled and dehumidified. A damper arrangement makes it possible to control the amount of fresh air being introduced.

The system of controls for this system is complicated, but is designed to provide the maximum conditions of comfort while at the same time cutting the load on the cooling system so as to reduce operating expense.

Fresh air is introduced at 12 o'clock midnight during the cooling season, the blower pulling it through the ductwork until 2 a.m. each night of the season in which cooling is needed.

In the "non-cooling" months a

(Concluded on next page)



RELAY AND TIME CLOCKS: These instruments control blowers, water lines, and the compressor. They do not show up very well because Glou had the entire walls and controls painted in aluminum.

* * *

Cool, Fresh Air Drawn In at Midnight, While Blower Operates from 7 A. M. to 7:30 P. M.

(Concluded from preceding page)

damper is adjusted to bring in a small amount of fresh air for the 12 midnight and 2 a.m. blower operation. Control for this operation is a Paragon model 302 with four-position start and stop.

This control also starts the blower up at 7 a.m. and cuts it off at 7:30 p.m.

Another Paragon 302 control operates a Mercoid V-3 103-108 relay, which has two main circuits, each independent of the other.

One circuit controls the water valve solenoid and the other controls the magnetic starter on the condensing unit in the packaged air conditioner. When the relay kicks in, the condensing unit and the water flow start up simultaneously.

The operation of the relay is controlled through a Mercoid Type "R" thermostat. The thermostat is located in the long corridor, in the return air stream. When the temperature reaches a pre-determined point, the thermostat will operate the relay.

This thermostat can be set to hold plus-or-minus ½° F., if desired. Even if temperatures are set within such close limits, no short cycling of the unit is noticed, it is said, because at least a 20-minute lag is encountered for a ½° temperature build-up.

The control is so connected that the condensing unit will not kick in until 7 a.m. However, if the thermostat is not calling for cooling at 7 a.m., the condensing unit will not kick in, but the blower will, and will continue to operate until 7:30 p.m.

Another feature which reduces the cooling load appreciably is the use of a roof spray system, making use of the condenser waste water.

A riser from the condenser brings the water through 1⅜-in. copper tubing, reduced to 1⅛-in. tubing, and then to ⅝-in. tubing connected to spray heads placed on the flat asphalt and crushed stone roof. Two conventional catch drains then carry the water, after it has been sprayed on the roof, to the sewer.

SPRINKLER HEADS: From sprinkler heads on the roof of the building, waste water from the condenser is sprayed over the roof top to cut down the cooling load.

What Dealers Heard At NARDA Meeting--

(Concluded from Page 1)

said manufacturers do not yet know the extent of this program although they do know it is "tremendous and without precedent."

Clary advised the dealers not to become panicky and over-exaggerate the situation. On the other hand, he said, they should make a careful analysis of present conditions and prepare a flexible plan of action that can be modified as conditions change.

He suggested that retailers might do well to analyze their own picture on the basis of all three possibilities: that conditions remain as at present, become much worse, or become much better.

HOW DEALERS CAN PREPARE FOR THE FUTURE

He made the following recommendations for each possibility:

If the situation gets worse, it would be of first importance for dealers to know their break-even point. Next, they should organize a thoroughly-equipped and technically-able service department, including perhaps even motor-rewinding facilities.

If things get better (improbable under present conditions), the first step would be for the dealer to study his operation carefully to see what phases could be improved "since good business conditions are the most insidious drug there is for efficient selling methods and good merchandising techniques."

If things remain as they are, dealers must be merchants, not just "storekeepers." To become good merchants, retailers must:

Gear local selling to the manufacturer's and distributor's programs; delegate authority and responsibilities to employes; expand community influence; develop repeat business; develop product loyalty; step up training and sales management; and train sales personnel to sell value instead of price.

"The possibilities of better management, better merchandising, and better selling were never better," Clary declared. "With the careful development of these skills, any good retailer in this business will be able to nicely meet and handle any condition which will arise in the next 12 months."

Clary expressed disagreement with recent press releases stating that inventories are at a low level. He said it was unlikely that there is any substantial inventory at the factory level but that the industry definitely does have considerable inventory in many places at the wholesale and retail levels.

In answer to a question from the floor, Clary said manufacturers will do everything possible to see that spare and replacement parts will be available. He explained that an industry group had recently urged the National Production Authority to do nothing that would hamper manufacturers in providing parts to the field.

Joseph B. Elliott, vice president in charge of RCA Victor Consumer Products, warned that "business as usual" is out in 1951, unless conditions change. Urging the dealers to prepare for merchandise shortages in the near future, he said:

NO 'BUSINESS AS USUAL'

"There is no prospect of business as usual. Manufacturers can't anticipate production beyond the first quarter of the year. We don't know what allotments of key raw materials to expect, because nobody knows from day to day what news the next few hours will bring from the fighting fronts."

He said manufacturers will hold production levels as high as available materials permit, but predicted production will fall far below demand.

Elliott promised that RCA Victor will make every effort to have replacement parts available for servicing and maintaining television sets now in homes. This can only be done, he noted, by diverting a portion of whatever materials and components are available from new production.

Elliott listed a number of steps he said dealers should take in anticipation of forthcoming shortages. Some of these are:

Study merchandise trends to guide advance purchasing; anticipate future demand by early placement of orders; get back in the phonograph record business; keep stocks clean; well organized, and fairly diversified in type; review personnel carefully and regularly.

Also, place sales emphasis where it can result in greatest real profits; weed out sources of avoidable expense and waste; maintain accurate reports on markets, stocks, and the day's business; go over service costs to make sure store-operated service is profitable and sound; keep the premises in good condition.

Ward R. Shafer, vice president and general manager of The Coolerator Co., said during a discussion on supplier-dealer relationships:

"Everyone agrees we are going to have to face a reduction in the number of consumer goods items in 1951 over 1950. How much reduction is anyone's guess, but believe me, it will be substantial.

THESE TWO COURSES ARE OPEN TO MANUFACTURERS

"The manufacturer can choose one of two courses: go into defense manufacturing and pay little or no attention to normal trade channels, or maintain a strong trade program while producing for defense as well.

"We, at Coolerator, long ago decided on the latter course and have done something about it. Our program is to distribute available products to those dealers who are willing by so doing to build a lasting association with a limited group of dealers through good merchandising council and a reasonable profit."

(This panel discussion resulted in a spirited debate on the merits of distributor versus dealer servicing.)

During the meeting, Mort Farr of Upper Darby, Pa., was elected president of the association. He succeeds James Lee Pryor of Wilmington, Del.

Other officers for the year are Harry B. Price, Jr., Norfolk, Va., and Phil S. Urner, Bakersfield, Calif., vice presidents; M. E. Brunderman, Chicago, secretary; and K. J. Stucky, Fort Wayne, Ind., treasurer. Urner, Brunderman, and Stucky were re-elected to their posts.

It was also announced that A. W. Bernsohn, television specialist with the public relations staff of RCA Victor, has been appointed managing director of Narda. Ira L. Lavin, who has been serving as acting managing director since C. C. Simpson resigned last year to join the Electric Association of Chicago, will continue to handle public relations for Narda.

The following were elected directors for three-year terms: Price; E. O. Kuehn, Belleville, Ill.; Ron Garlock, Lansing, Mich.; Harold Frankel, Huntington, W. Va.; and Larry Olson, Moline, Ill.

Self-Contained Air Conditioning

Corbett Demonstrates Formula for Figuring Operating Costs, Outlines Various Jobs 'Package' Units Can Do

By C. W. Corbett, Refrigeration Sales Dept., The Trane Co.

Because the self-contained air conditioning or cooling unit is designed as a package it quite necessarily has certain limitations. However, these limitations are often magnified so greatly that the true worth of the self-contained unit is sometimes underestimated.

The self-contained air conditioner or cooling unit is one in which a condensing unit is combined in the same cabinet with the evaporator and other functional elements. The refrigerant is generally condensed in a water-cooled condenser. Many installations are made where ventilation is omitted, but the units are designed with an outdoor air connection so that ventilation can be provided if desired. Usually the average self-contained unit is installed in the conditioned space but it is *entirely practical* to use the unit with ductwork.

Thanks to the fact that it is self-contained it is the most simple of all air conditioning systems to install. Even the beginner can install a unit successfully. Generally the unit can be moved into place in a store, tavern, shop, or office and simple connections can be made for condenser water supply and return, for draining the condensate from the evaporator, and for power requirements. The parts that make most air conditioning systems difficult to install—the controls, the refrigerant piping, etc., are all already in position.

When total costs are considered the self-contained air conditioner is usually most economical for the consumer. The initial cost of the self-contained unit is less than a built-up system. Units are manufactured in quantity in a factory under controlled conditions—hence the lower cost. Units are most popular where floor space is highly valuable. The standard 5-ton unit requires only 7.5 sq. ft. of floor space.

Operating costs which are generally low can be calculated in a comparatively easy manner. Formulae suggested in the American Society of Heating & Ventilating Engineers Guide have been combined to produce the following equation:

Season Operating Cost = (EHeR) + (WHeC)

E = Electrical factor (kw)

He = Equivalent full load operating hours

R = Power rate ($/kwhr.)

W = Water factor (thousands of gallons per hour)

C = Water cost ($/1,000 gallons)

The values of E and W are obtained from Table 1 and the value of H can be determined from Table 2.

For example, determine the seasonal operating cost of a 5SC unit in a drugstore in a city near Chicago where the power rate is 3 cents per kwhr. and the water rate is $.067 per 1,000 gallons.

Assuming operation at 105° condensing temperature, the electrical factor from Table 1 is 4.25 and the water factor at 65° entering water is .284.

To find equivalent full load operating hours refer to Table 2. For Chicago the seasonal load for a drugstore is 1,060 hours.

Using the equation the operating costs are:

Season Operating Cost = $4.25 x 1,060 (Power) x $.03 + .284 x 1,060 (water) x $.067 = $135.00 + $20.20 = $155.20

The power required to run the fan in the self-contained unit is about 6% of compressor power for free delivery and about 10% for delivery under maximum allowable static pressure. Therefore, it is reasonable to add from 6% to 10% to the above power cost to allow for fan requirements. Adding 10% of $135.00 gives a total operating cost of $168.70.

Table 1 shows that with increased condensing temperatures, power consumption increases from 10 to 20% (depending on the size of the unit) while water consumption may decrease as much as 50%. However, the water factor is much smaller than the electrical factor and therefore accounts for a smaller part of the total operating cost.

The above is applicable when the water and power rates are nearly the same numerically. If the two rates are very different, comparative costs should be figured to determine which condensing temperature gives the most economical operating condition.

Too often the self-contained air conditioner has been considered only from the standpoint of sensible cooling. Actually, when equipped with a four-row cooling coil such as used in all SC units, considerable dehumidification can be accomplished. As much as 30% of the total capacity of the unit can be used to offset latent heat gains when the entering air wet bulb is 67°.

When properly selected, units with four-row cooling coils can handle dehumidification problems in all the usual applications. Exceptions can be found in those restaurants where steam tables, coffee urns, and heavy customer traffic build up large latent loads or any application when 100% outside air is required.

It is seldom that a large amount of outside air is introduced into the self-contained air conditioner. However, from 10 to 20% outside air can be used in the units, and a reasonable amount of ventilation obtained.

To make the self-contained unit a year-round air conditioner, steam heating or even hot water heating coils can be used. In the smaller units used for free delivery the heating coil is placed in the air discharge chamber. When used with ductwork the air discharge chamber is omitted. In those cases the heating coil is placed in the ductwork adjacent to the unit. If desired, a type SD coil can be used to prevent freeze up when using outside air during the heating season.

Even though control of the self-contained unit is exceedingly simple it is still suitable for most applications. Because it is of the "on-off" variety it is not adequate to keep change in temperature within critical limits. But it can be arranged for "fan operation only" during mild seasons or for winter ventilation when the unit is used in conjunction with a heating coil to temper the cold outside air.

All this is in addition to the normal summer cooling cycle in which the unit can be operated at any desired temperature level. In this manner comfort temperature between 10° and 15° below outside dry bulb air temperature can be maintained in any space.

TABLE 1—Electrical and Water Factors To Be Considered In Figuring the Seasonal Operating Cost of Self-Contained Air Conditioners

	Electric Factor		Water Factors								
			40°	45°	50°	55°	60°	65°	70°	75°	80°
	95°	2.32	.121	.137	.156	.183	.219	.274	.364	.548	
3SC	105°	2.71	.099	.108	.120	.135	.155	.180	.216	.270	.360
	95°	3.66	.192	.216	.247	.288	.345	.432	.575	.862	
5SC	105°	4.25	.154	.170	.188	.213	.243	.284	.340	.424	.566
	95°	5.45	.291	.327	.373	.436	.523	.656	.872	1.31	
7SC	105°	6.02	.231	.253	.282	.317	.362	.422	.506	.633	.843
	95°	7.52	.391	.440	.503	.586	.704	.882	1.17	1.76	
10SC	105°	8.29	.314	.346	.384	.432	.493	.575	.690	.863	1.15

TABLE 2*—Equivalent Full Load Operating Hours of Refrigeration Equipment Used for Summer Cooling, May 15 to Oct. 15

Application	Hr. Open For Business	Atlanta	Boston	Chicago	Detroit	Los Angeles	New Orleans	New York	Philadelphia	Oklahoma City	St. Louis	Washington, D. C.
Barber Shops	1280	1010	650	720	720	680	1080	830	860	1020	890	940
Department Stores	940	840	560	610	610	580	890	700	720	840	750	780
Drug Stores	2100	1630	950	1060	1060	980	1790	1280	1330	1650	1420	1530
Funeral Parlors	600	440	300	330	330	310	470	370	380	440	400	410
Offices	940	870	560	620	620	580	900	710	740	880	770	810
Restaurant (short hour)	1290	970	535	620	620	570	1060	760	800	980	830	880
Restaurant (long hour)	2100	1510	820	930	930	850	1690	1170	1210	1530	1300	1400
Specialty Shops (5 & 10)	1090	800	530	590	590	560	860	670	690	810	720	750
Theaters—Continuous	1500	1010	700	750	750	720	1080	850	870	1020	910	950
Theaters—Neighborhood	900	640	420	450	450	430	650	500	520	650	550	580

*From American Society of Heating & Ventilating Engineers 1950 Guide.

Refrigerated Test Tanks Aid Study of Mosquitoes

ATLANTA—Construction of three highly unusual refrigerated "test units" is permitting the Georgia State & Federal Test Station, in southern Georgia, to check the life cycles and habits of mosquitoes, under a variety of temperatures.

Designed and built by Gordon L. McWilliams, head of Refrigeration Appliances, Inc., in Atlanta, the test station mosquito project utilizes three Thermopane windowed test tanks, which can be heated or refrigerated, to 0° F., or well above 100°. Each 30 in. by 4 ft., the tanks are utilized to set up three different known conditions, under which the larvae and adult mosquitoes are studied.

Each of the tanks is refrigerated by means of a ⅓-hp. Frick compressor, with direct expansion coils providing the refrigeration desired.

Electric heating units are likewise provided for raising the temperature to well over 100°, within a few minutes time.

In the test tanks, a comprehensive study of mosquitoes and their habits is being carried out, with the eventual theory of utilizing mosquito-killing compounds in large quantities at the exact temperature and humidity conditions when the lethal sprays would show the greatest efficiency.

'0 Soft Ice Cream Sales 5 Times '47 Figure

HICAGO — Soft ice cream looks li a healthy post-war baby to the d y industry.

hile the sales of hard ice cream d pped for the third successive year l year, sales of soft ice cream j ped to five times what they were i 947. A total of 31,000,000 gals. of t confection was consumed last y r.

f this, according to W. C. Brown, p sident of the Dairy Queen Na- t al Trade Association, Dairy Queen o lets have sold one third through t r 1,400 stands around the coun- t

he first Dairy Queen stand was s up in Joliet, Ill. in 1940, but the o anization did not really begin to e and until after the war. In 1946, it sales amounted to $75,000. Last y r they were $35,000,000.

Soft ice cream contains less butter fat than hard ice cream and it is frozen at 27° F. as compared with 8 F. for hard ice cream.

'DO' Rating Can Cover Tools for Defense Work

WASHINGTON, D. C. — The National Production Authority has authorized the use of "DO" ratings carried by defense orders to procure accessories for production equipment for companies working on rated orders.

Ratings may be used for procuring jigs, dies, tools, and fixtures where inability to obtain these production equipment accessories would result in failure to meet delivery dates established in rated orders. Ratings may be used for accessories only if they are needed directly for the production of material for which a rating has been assigned.

NPA said the action was taken as a means of granting some temporary assistance immediately, pending development of a longer-term maintenance, repair, and operating (MRO) program.

The action was taken in amendment 3 to NPA Regulation 2, effective Jan. 11.

IEEDA Dealers Divided On Effects of Reg. W

SPOKANE, Wash. — Though a slight majority of the members of the Inland Empire Electrical Dealers Association polled last November said that Regulation W had not materially affected their appliance sales, an equal number indicated that stricter terms would seriously reduce their sales.

In both instances, the majority was 55% with 35% holding the opposite opinion and 10% on the fence.

Forty per cent of the dealers questioned thought that the effects of the credit curbing regulation would worsen, while 35% felt that they would not. Twenty per cent had no opinion.

Asked what they would do if shortages become too critical, 60% said they would increase emphasis on service operations, 30% said they would add non-electrical lines, and only 5% indicated that they would go out of the appliance business. Forty-five per cent said they definitely would not go out of the appliance business.

NPA Opens Field Offices In 5 Cities

WASHINGTON, D. C.—Five field offices that will be able to advise businessmen on actions taken by the National Production Authority and provide information on the purchasing needs of the government have been opened recently by the U. S. Commerce Department.

The offices are located as follows:

Grand Rapids, Mich.—The Davenport Institute, 4 Fulton St. E., George Petrie, district manager.

Fort Wayne, Ind.—507 Strauss Bldg., 809 S. Calhoun St.

Chattanooga, Tenn.—723 James Bldg., Eighth and Broad Sts.

Boise, Idaho—Suite 251 Sonna Bldg., Main St.

San Juan, Puerto Rico—No. 2 Puerto Rican Reconstruction Administration Ground Bldg., Harold Lockheimer, district manager.

Installing Equipment In Window Dramatizes Fur Storage

ST. LOUIS — Dramatizing refrigerated fur vault facilities to as many as 50,000 passersby per day is a merchandizing plan which has brought full-capacity fur storage volume each year to Howard's Cleaners, which is located at Grand and St. Louis Aves., here.

The Howard plant faces on Grand Ave., main crosstown thoroughfare in the Missouri metropolis, on which heavily loaded streetcars pass every three minutes and the scene of the heaviest automobile traffic found in the city.

To capitalize upon this, the fur vault has been located 6 ft. behind the plateglass windows which run all the way across the front of the Howard building, the vault entrance at the left side of the building, where passersby on foot, in public transportation, or in private automobiles, can get a clear view of the interior.

Mounted directly back of the glass is a heavy combination-lock-equipped door, of the same type which leads into the fur vault, plus the refrigeration compressor, evaporative cooler, controls, and dial-type thermometers. Small signs in the display indicate that all furs stored by Howard's Cleaners are maintained at a smooth low temperature, which does not vary more than one or two degrees during the entire summer period, and mentions extra precautions taken to insure against moth damage, soil, and dust.

Since the refrigeration mechanism, mounted on a platform to the left of the vault door, is in actual operation at all times, this "flurry" of action invariably attracts much attention, and the massive safe door, standing 8 ft. high and 5 ft. wide, likewise gives the impression of maximum security, proof against theft, fire, and other damage, it is pointed out.

As a result, Howard's Cleaners feels that the firm is bound to be mentioned whenever the subject of fur storage comes up—and equipment, which under most circumstances would be hidden away in the basement, or at the rear of the building, has thus become a powerful "advertising asset."

Biological Case Sparks Serum, 'Wonder' Drug Sale

ELM CREEK, Neb.—A 3¾-cu. ft. Gennett biological refrigerator which he installed at the Else Drug Co. here last April has been instrumental in boosting the sales of biologicals to the point where a larger refrigerator must be installed, according to Floyd Else, proprietor.

The refrigerator for vending biologicals proved to be especially effective in sparking sales of serums and "wonder" drugs to the farm trade, the druggist said.

Whirlpool Laundry Equipment Up

ST. JOSEPH, Mich.—A 5% increase in the price of Whirlpool home laundry equipment was announced recently by the Whirlpool Corp. here.

Air Conditioning Sales

DETROIT Figures for '50 Show Big Spurt over '49

DETROIT—For four years in a row air conditioning has set new sales records in Detroit, it is revealed in the latest figures for 1950 as tabulated by AIR CONDITIONING & REFRIGERATION NEWS.

Sales last year jumped 24.4% over air conditioning installations for 1949 with 883 package units and condensing units for air conditioning being installed in 1950 compared with 710 during 1949, it is indicated by a study of permits issued by the Detroit Department of Buildings and Safety Engineering.

The 24.4% gain in 1950 over 1949 represents a considerable spurt, because 1949 sales, while ahead of 1948, were up only 5.5%. Biggest gain over a preceding year was made in 1947, when sales were 60.8% over 1946. Close behind, however, was the 1948 sales increase, which was 59.1% ahead of 1947.

Besides setting a new record for total unit sales, 1950 also saw new high marks for number of establishments that were air conditioned as well as the total horsepower.

The 883 units represented a total of 8,378 hp. and were installed in 660 different establishments. In 1949 the 710 units amounted to 5,803 hp. and went into 571 establishments; in 1948, 673 units, 5,923¾ hp., 516 establishments; in 1947, 423 units, 5,571¾ hp., 286 establishments; in 1946, 266 units, 5,229¾ hp., 213 establishments.

Shown in the accompanying tables are such data as a classification by type of establishment of the number of installations and horsepower for each type; a breakdown by size of equipment for the years of 1948, 1949, and 1950; a comparison of sales by make; an analysis of how contractors split up the jobs, and a comparison of monthly figures for the past three years.

The latter tabulation shows that June was the largest month in 1950, 187 units having been sold. July was a close second, however, with 174, while August was third with 111, and May fourth with 104.

No trend toward spreading the air conditioning sales picture more evenly across the whole 12-month period would be apparent from these figures. The lowest month in 1950 was November with 25. In January 26 units were sold.

Except for the increase, the monthly figures for 1950 have about the same pattern as the preceding two years. June was likewise the largest month in 1949 with 181 units being sold. In 1948, however, the monthly peak was not reached until July when 125 units were sold, compared with 63 in June. Even though July of 1949 and 1950 was the second highest month in their respective years, each was greater than the peak month of 1948.

With respect to the sizes of equipment being sold for air conditioning today, even a quick glance at the table showing sales by size for the past three years shows how important the package conditioner has become.

During 1950 there were 412 units of 5 hp. sold, 175 of 3 hp., and 126 of 7½ hp. Virtually all of these 713 were packages and they represent approximately 80% of the units sold.

It should be pointed out, however, that no self-contained window or console model air conditioner figures are included in these tabulations because except for a few isolated cases no permits are required for their installation.

While the 5-hp. classification is far and away ahead of any other size in the 1950 tabulations, there seems to be an increasing trend to the 7½-hp. machine. In 1948, for example, there

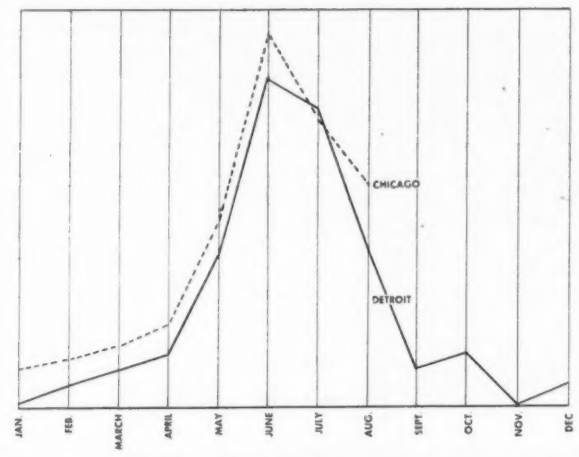
(Continued on next page)

How Chicago and Detroit Compare

What will happen to the air conditioning industry, among others, in the coming few months as the result of the present emergency program is a matter of conjecture, but we do know that what happened in the past 12 months has been good.

Presented on this and the following pages are reports of air conditioning sales for 1950 and preceding years in two of the major metropolitan markets of the nation—Chicago and Detroit.

Sales jumped during the past year in both cities. In the first



eight months in Chicago sales totaled 2,603 units, compared with 1,678 in the same period of 1949. In Detroit 883 units were sold in 1950, a gain of 24.4% over 1949 sales of 710.

Although Chicago offers a bigger market than Detroit because of its advantage in population, the seasonal sales pattern for both cities is about the same, as is shown by the chart comparing sales by months during 1950 in the two cities. The Chicago line has been superimposed on that for Detroit.

Records Show Role of Various Makes, Place of Contractor In 1950 Picture

(Continued from preceding page)

were 56 machines of this size sold; in 1949, 47, but in 1950, this size had jumped to 126.

Increases were also chalked up over the three-year period by the 3- and 5-hp. machines, but the sales growth was by no means so pronounced as in 7½-hp. class.

Largest single compressor installed during 1950 in Detroit was a 600-hp. machine. There were also two 100-hp. machines sold here during the year. Largest in 1949 was a 300-hp. unit.

Also tabulated from the permits issued for air conditioning installations in Detroit during 1950 was a comparison of the various makes of equipment sold. These figures show that the leading make, designated as "A" was represented by 194 units, amounting to 22% of the total installed.

In second place was "B" with 178 units for 20.2% of the total. In third place was "C" with 103 units or 11.7%; in fourth, "D" with 101 units and 11.4%. These top four makes accounted for 65.3% of the total installations.

Although no attempt was made to analyze the standing of the various makes in terms of horsepower, it will be recognized that some makes are represented by a relatively few units but these may total up to a considerable amount of horsepower. Some sizeable equipment, however, is represented among the four leading makes.

The place of contractors in the air conditioning picture is indicated in still another table, which shows that 35 contractors were represented in the 174 units installed during the month of July, 1950. As usual, the bulk of the jobs, in terms of units at least, is being done by just a few of those in the business.

How Makes Compared During '50 In Detroit

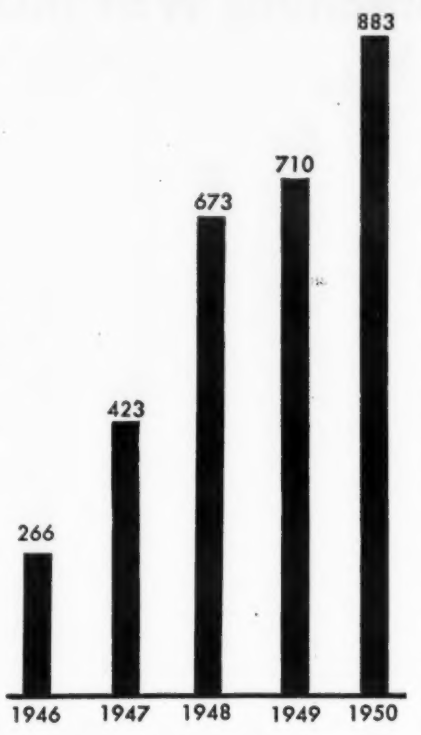
Rank	No. Units	Per Cent
A	194	22.0
B	178	20.2
C	103	11.7
D	101	11.4
E	56	6.3
F	41	4.6
G	32	3.6
H	25	2.8
I	24	2.7
J	16	1.8
K	14	1.6
L	13	1.5
M	12	1.4
N	12	1.4
O	11	1.2
P	10	1.1
Q	10	1.1
R	8	.9
S	5	.6
T	4	.5
U	3	.4
V	2	.2
Others	9	1.0
	883	100.0

Analysis of Detroit Sales by Size

Size In Hp.	1948	1949	1950
Less than 3 hp.*	9	7	12
3	115	127	175
5	362	402	412
7½	56	47	126
10	28	40	38
15	33	30	37
20	8	7	17
25	26	17	19
30	9	5	5
40	9	17	13
50	5	7	10
60	7	2	3
75	6	1	13
100	....	....	2
Over 100	....	1	1
Total	**673**	**710**	**883**

*Does not include self-contained window or room units.

Detroit Sales by Units



QUICK COMPARISON of air conditioning unit sales in Detroit during the past several years is shown by the table and graph above, which readily indicate that the industry's sales have been constantly on the upgrade since the end of World War II. Study of the sales by size would imply that the package unit has made possible this growth.

Leading contractor, given the rank of "A," installed 30 units in July, 1950, accounting for 17.2% of the total for the month. In second place was "B" with 23 units for 13.2%. "C" installed 20 units or 11.5%; "D," 13 or 7.5%; "E," 12 units, or 7.0%.

At the opposite end of the listing, there were 12 contractors who installed one unit apiece, and another seven whose installations during July, 1950, were limited to two each. There were four who installed three each.

On the whole, the figures for the month of July, 1950, are pretty much in the line with the previously published tabulation for all of 1949. That year a total of 56 contractors installed the 710 units, the leading contractor handling 14.2% of the total, the second contractor installing 10.1%.

Incidentally, the same two contractors who topped the list in 1949 were the leaders in July of 1950, although their rank was reversed.

The accompanying tabulation showing where air conditioning was installed in Detroit during 1950 (also 1949) reveals that the 883 units were installed in 660 different establishments. This represents a considerable gain over the 571 establishments noted in the figures for 1949, and is likewise the largest ever reported for this city.

In point of number, more restaurants purchased air conditioning than any other classification during the past year, a total of 93 such establishments installing equipment totaling 555½ hp.

Second in rank were taverns and offices, each with 82. In terms of horsepower of the installations, however, office installations led all the rest with 1,192 hp. The 82 taverns totaled 520 hp.

Second largest horsepower classification was department stores, the eight installations amounting to 1,020 hp.

A wide variety of establishments can be noted in the list, which, inci-

(Concluded on next page)

How Contractors Shared July, 1950 Installations

Rank	No. Units	Per Cent
A	30	17.2
B	23	13.2
C	20	11.5
D	13	7.5
E	12	7.0
F	7	4.0
G	7	4.0
H	6	3.4
I	5	2.9
J	5	2.9
K	4	2.3
L	4	2.3
M	3	1.7
N	3	1.7
O	3	1.7
P	3	1.7
7 installed 2 ea.	14	8.0
12 installed 1 ea.	12	7.0
35	174	100.0

Best Cooling Prospects Are Restaurants, Offices

(Concluded from preceding page)

dentally, can be used to advantage by the contractor in determining which are the most likely prospects for air conditioning.

Restaurants, offices, taverns must obviously still be good markets for air conditioning because for the past several years they've always been the leaders in number of installations.

Drugstores shouldn't be overlooked, either. During 1949 a total of 29 drugstores bought 186½ hp.; in 1950, 23 purchased 139 hp.

Stores in general continue to be important buyers of air conditioning, 53 of them being represented in the 1950 tabulation. Funeral homes and banks are two other good prospects, it would appear. Barber shops were getting into the picture, too, in 1950, seven having been air conditioned in contrast to none at all the preceding year.

Included in the 1950 installations were such buyers as an advertising agency, appliance distributors and retailers, a bridal shop, two camera shops, 11 clinics, four clubs, a dance studio, two drafting rooms, a hardware store, 11 jewelry stores, two libraries, a newspaper office, a photo-engraver, three plumbing display rooms, a refrigeration parts wholesaler, 12 automobile salesrooms, a tobacco wholesaler, and a wide variety of others.

Sales by Month for Past 3 Years

Month	1948	1949	1950
January	12	27	26
February	37	23	33
March	42	31	42
April	90	32	53
May	68	78	104
June	63	181	187
July	125	132	174
August	91	78	111
September	33	70	42
October	27	16	52
November	69	22	25
December	16	20	34
Total	**673**	**710**	**883**

Where Air Conditioning Was Installed In Detroit During 1949-1950

Establishment	1949 No.	1949 Hp.	1950 No.	1950 Hp.
Advertising agency	....	....	1	35
Air conditioning dealer	2	17	....	....
Airline ticket office	....	....	1	5
Appliance distributor	....	....	2	63
Appliance store	6	37½	5	43
Architect	....	....	1	66
Bakery	4	28	....	....
Bank	5	76	14	417½
Barber shop	....	....	7	25
Baseball stadium	1	50	....	....
Beauty operator school	....	....	2	23
Beauty parlor	7	33½	10	50
Blueprint room	....	....	1	5
Bowling alley	5	55	8	178
Brewery	1	5	2	8
Bridal shop	....	....	1	5
Bus terminal	....	....	1	7½
Cafeteria	1	3	....	....
Camera shop	2	15	2	.8
Candy manufacturing	1	3	....	....
Cartage office	....	....	1	7½
Caterer	1	5	....	....
Church	2	10	....	....
Clinic	4	25	11	71
Clothing store	8	103	11	102½
Club	2	23	4	177½
Conference room	1	5	....	....
Confectionery	....	....	9	64
Dairy bar	4	18	3	13
Dance studio	1	6	1	5
Delicatessen	1	5	1	5
Dentist	1	3	3	11
Department store	5	535½	8	1,020
Die manufacturing	1	5	....	....
Dime store	1	7½	3	150
Doctor	6	24	7	34
Drafting room	....	....	2	35
Dress shop	17	101½	13	63½
Drug manufacturing	....	....	3	57½
Drugstore	29	186½	23	139
Dry goods store	2	10	3	9
Engineering office	....	....	1	5
Exposition company	1	3	....	....
Factory	11	151	14	237
Food processor	1	7½	....	....
Funeral home	13	105½	16	111½
Fur store	1	15	3	15½
Furniture store	1	70	7	145
Gift shop	2	8	....	....
Haberdashery	10	44	5	33½
Hall	1	300	3	27½
Hardware store	1	5	1	5
Hospital	3	10	4	36
Hotel	9	168½	8	102
Insurance office	5	58	1	5
Jewelry store	8	46	11	50½
Laboratory	3	18	4	29
Library	....	....	2	35
Loan company	1	7½	2	15
Lumber company office	1	3	1	5
Manholes (portable installation)	11	11	....	....
Market	4	20½	32	708
Millinery shop	1	3	....	....
Newspaper office	....	....	1	5
Night club	....	....	2	20
Nut shop	1	3	....	....
Office	75	841	82	1,192
Optical store	....	....	1	5
Photo-engraver	....	....	1	11
Photo studio	5	28½	3	11
Plumbing contractor	1	7½	3	18
Pool hall	....	....	1	5
Printer	5	163½	3	93½
Radio store	1	5	....	....
Radio studio	1	5	1	3
Reading room	1	5	....	....
Real estate office	1	3	2	12
Refrigeration parts wholesaler	....	....	1	10
Residence	9	33	7	21
Restaurant	101	676½	93	555½
Salesroom, automobile	7	72	12	136½
Shoe store	15	91½	7	51½
Stock broker	....	....	2	65
Store	14	207	53	450½
Tailor	....	....	1	5
Tavern	114	659½	82	520
Television studio	1	30	....	....
Theater	11	422½	8	310
Tire store	....	....	1	8
Tobacco wholesaler	....	....	1	10
Tool shop	....	....	3	9
Trust company	....	....	1	225
Union hall	....	....	1	120
Union office	1	15	....	....
Unknown	1	15	....	....
Utility office	4	25	6	24
Veterinarian	....	....	1	5
Warehouse	2	25	1	7½
Welding supply house	1	15	....	....
X-ray laboratory	1	15	....	....
Total	**571**	**5,803**	**660**	**8,378**

Air Conditioning Sales

CHICAGO Installations Hit New Highs In June, July

CHICAGO—Air conditioning sales in Chicago during 1950 were running well ahead of the 1949 record for the first eight months, according to data made available by Gerald Gearon, supervising mechanical engineer of the Boiler and Refrigeration Inspection Department of the City of Chicago.

During the months of January through August a total of 2,603 package units and condensing units for air conditioning were installed, the city permits show. This compares with 1,678 installed during the same period of 1949.

Both of these figures include units below 3 hp., records of which are admittedly not complete because only under certain circumstances are city permits required for the small self-contained units.

Even with these smaller installations eliminated from the figures, 1950 sales were still running ahead of 1949. For example, in the first eight months of 1949 there were 1,206 units of 3 hp. or greater installed. The comparable figure for 1950 is 1,465.

This means, of course, that 472 units under 3 hp. were installed during the first eight months of 1949, compared with 1,138 in the same period of 1950.

No 100% accurate figures are obtainable as to window unit sales, but data compiled from distributors indicates that 4,857 of these smaller self-contained units were sold during the 1949 season, according to a reliable estimate. It is expected that 1950 will top that.

In comparing the sales by month, June of 1950 set what is believed to be an all-time record, 751 installations being sold. This was far ahead of any month in 1949 or 1948. In fact, the second largest month of 1950—July with 583—was considerably ahead of top month of 1949, which was also July when 437 units were sold.

Previously compiled data published in AIR CONDITIONING & REFRIGERATION NEWS shows that biggest month in 1948 was August with 371 sales. August of 1950 sales totaled 444. Sales for each month of 1950 through August were running ahead of the same months of the previous year, according to these tabulations.

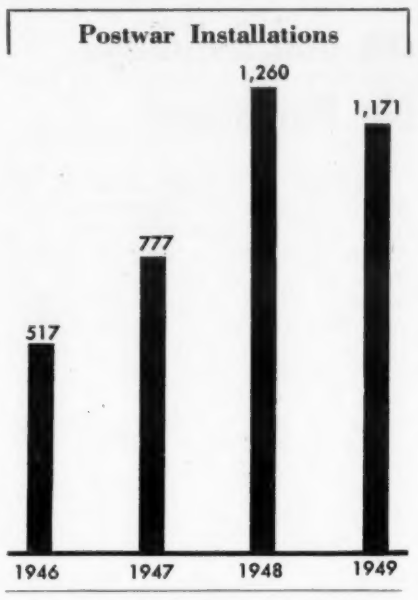
Lowest of the first eight months last year was January with only 71 units, compared with 61 in January of 1949. When figures for the final four months of 1950 are tabulated, they will probably show that December is the lowest. That was the case in 1949, the tables indicate.

Study of the air conditioning sales according to size brings out some interesting facts, also. By far the most popular unit among the larger sizes is the 5-hp. machine. During the first eight months of 1950 a total of 777 were sold, compared with 672 in all of 1949.

Next in popularity was the 3-hp. unit, the totals being 250 for 1950 (eight months), compared with 254 in 1949. Third among the bigger machines was the 7½-hp. model, 127 for 1950 (eight months), 120 for all of 1949.

With the exception of the 3-hp. size, incomplete 1950 figures were running ahead of 1949 totals in what may be considered the medium size categories—3 hp. through 25 hp.

As far as total horsepower is concerned, it is likely that 1950 will top the 1949 figure. By the end of the first eight months of 1950 total horsepower represented by air conditioning units amounted to 15,640.5. In all of 1949 this figure was 16,427.75.



It might be well to point out also that the 1949 figures fell off slightly from the 1948 totals, 1,990 units being installed during 1949 as compared with 2,012, a loss of approximately only 1%. The drop in horsepower, however, was more pronounced, 16,427.75 for 1949, compared with 21,601 in 1948.

Primary cause of this drop in total horsepower would appear to lie in the largest size category. During 1948, for example, there were 24 machines installed that were more than 100 hp. in size, accounting for a total of 7,875 hp. In 1949 there were but 13 machines this large, and they totaled 5,525 hp. The change is even more pronounced in the first eight months of 1950 when only eight machines of over 100 hp. were installed for a total of 1,770 hp.

An additional breakdown of the Chicago air conditioning installation figures gives a comparison of sales by make. Here the makes are identified as "A," "B," "C," etc., and the rank is determined by the number of "installations" using each make. As used in this tabulation "installations" means the number of jobs where each make was used, and not necessarily the number of units. Thus, 10 self-contained conditioners of make "A," for example, installed in one set of offices would be counted only as one job, assuming that they were all installed as part of the same contract.

How 1950 A.C. Sales Compared with 1949

Month	1949	1950
January	61	71
February	64	91
March	80	109
April	159	167
May	210	387
June	342	751
July	437	583
August	325	444
8 Months	**1,678**	**2,603**
September	148	
October	65	
November	51	
December	48	
Total	**1,990**	

During the first eight months of 1950, then, make "A" was used on 221 jobs for a total of 1,472 tons. Make "B," however, which was installed on 211 jobs, had chalked up a total of 4,526 tons.

Make "C" appeared on 118 jobs for a total of 1,451½ tons; "D" on 113 installations with 1,477½ tons,

(Concluded on next page)

Biggest Postwar Buyers of Cooling Are Offices and Buildings With Restaurants and Clothing Stores Also Big Purchasers

(Concluded from preceding page)

and make "E" on 112 jobs with 796½ tons.

"A" was also the leader in the full year of 1949 in point of number of installations with 195 totaling 1,559½ tons. Second during 1949 in terms of number of jobs was "E" (1950 ranking) with 170 for 1,061 tons. Make "B," however, had a total of 169 jobs in 1949 representing a total of 2,708½ tons. Tonnage-wise, "F" was largest during 1949 with 3,943½ tons chalked up in 60 installations.

The largest tonnage for any one make during 1950 (eight months) was that of "B" with 4,526 tons.

Another interesting compilation made from the Chicago air conditioning data shows how the jobs were spread among the numerous contractors in that city.

Checked for the month of July, 1950, when 583 package air conditioners or condensing unit for air conditioning were installed, the figures show that 62 contractors participated in the sales. This works out as an average of 9.4 apiece.

Actually, though, the majority of the installations are made by a very few of the 62 contractors. The top two contractors in the list, for example, installed a combined 43% of the total jobs. Contractor "A" put in 128 for 21.9% of the total; contractor "B," 123 jobs for 21.1%. Combined with the third contractor "C" who installed 48 or 8.3%, the top three installed 51.3% of the total jobs during the month of July, 1950.

This means, then, that approximately 5% of the contractors installed slightly better than half of the jobs for the month.

Half of the contractors installed either one or two jobs during the month. There were five who installed two each, 25 who installed but one apiece. There were seven who installed three each, four who installed four each, two with five apiece, five with six installations each, two with eight, and three with nine.

Above that the installations of the contractors, in ascending order, were 11, 14, 15, 18, 24, 47, 48, 123, and 128.

Perhaps a broader view of the whole Chicago air conditioning picture may be obtained in the table which shows the number of installations by type of application for the postwar years of 1946, 1947, 1948, and 1949 as well as a summation of the previous years up to an including 1945. Nothing below 3 hp. is considered in these figures.

At the end of 1949 a grand total of 7,671 installations had been made, representing 181,468 hp.

Through 1945 the installations had totaled 2,952. In 1946 there were 517; in 1947, 777; in 1948, 1,260; and in 1949, 1,171.

Offices and buildings represented the greatest number of installations through these years with a total of 1,522 representing 41,247 hp. Restaurants were second in number with 1,417 and 18,507 hp. Clothing stores were also among the leaders, having 513 installations for 12,608 hp. Nearly half of these had been installed by the end of 1945, however, but 1948 did see a considerable surge here when 112 such stores added air conditioning. Miscellaneous stores by the end of 1949 had accounted for 685 installations totaling 7,165 hp.

As would be expected, theaters are among the biggest users tonnage-wise, the 249 installations being equivalent to 26,391 hp. Most of these have been in operation for a long time, however, the totals up through 1945 showing 207 theater air conditioning installations with 23,706 hp.

Who Bought Air Conditioning In Chicago

	Through 1945 No.	1946 No.	1947 No.	1948 No.	1949 No.	Total No.	Hp
Amusements	50	5	13	7	8	83	3,079
Banks	19	11	5	15	14	64	3,765
Barbers	8	1	....	4	2	15	54
Beauty Shops	32	2	2	5	2	43	301
Clubs	12	1	6	15	13	47	93
Doctors and Dentists	17	10	11	21	9	68	321
Funeral Parlors	119	6	16	24	22	187	1,994
Hospitals	15	3	5	13	4	40	917
Hotels	38	9	15	27	21	110	5,883
Manufacturing							
Baking	25	7	12	12	3	59	73
Candy	76	9	20	11	5	121	8,542
Printing	41	9	10	10	4	74	4,493
Miscellaneous	179	56	34	55	19	343	21,493
Office and Building	651	137	285	289	160	1,522	41,247
Residence	63	8	9	5	....	85	363
Restaurants	671	98	133	286	229	1,417	18,507
Stores							
Candy	86	16	23	37	22	184	953
Clothing	228	38	55	112	80	513	12,608
Drug	156	12	21	53	48	290	2,659
Food	49	6	5	21	32	113	1,133
Shoe	91	10	15	29	21	166	1,263
Miscellaneous	98	46	66	173	302	685	7,163
Studios	21	14	4	9	5	53	823
Theaters	207	3	8	24	7	249	26,391
Laboratories	....	....	4	3	6	13	133
Total	**2,952**	**517**	**777**	**1,260**	**1,171**	**7,671**	**181,468**

62 Contractors Shared July, 1950 A.C. Jobs

Standing	No.	Per Cent
A	128	21.9
B	123	21.1
C	48	8.3
D	47	8.1
E	24	4.1
F	18	3.1
G	15	2.6
H	14	2.4
I	11	1.9
J	9	1.5
K	9	1.5
L	9	1.5
M	8	1.3
N	8	1.3
O	6	1.0
P	6	1.0
Q	6	1.0
R	6	1.0
S	6	1.0
T	5	.8
U	5	.8
V	4	.7
W	4	.7
X	4	.7
Y	4	.7
7 installed 3 ea	21	3.8
5 installed 2 ea.	10	1.7
25 installed 1 ea.	25	4.5
62	583	100.0

Chicago A.C. Installations Compared by Make

Make*	1949 Jobs	1949 Tons	First 7 Months, 1950 Jobs	First 7 Months, 1950 Tons
A	195	1,559½	221	1,472
B	169	2,708½	211	4,526
C	77	718	118	1,451½
D	117	2,549½	113	1,477½
E	170	1,061	112	796½
F	60	3,943½	85	909
G	72	430½	61	310
H	62	382	57	565½
I	31	465	50	590
J	7	50	47	254½
K	11	54	41	139½
L	12	84	27	134
M	23	191	15	167½
N	23	404	13	490
O	7	67	12	118½
P	67	533½	10	82½
Q	8	249	9	248½
R	27	217½	7	38½
S	5	33	7	55
T	13	76	5	40
U	2	18	3	75½
V	1	4	3	14
W	3	60	2	35
X	2	8	1	5
Others	7	34	15	128

*Rank is by number of jobs in first seven months of 1950.

1949-50 Installations Compared by Size

Size (Hp.)	1949 No. Units	1949 Total Hp.	First 8 Months, 1950 No. Units	First 8 Months, 1950 Total Hp.
½*	85	42.5	216	108
¾*	511	383.25	772	579
1*	52	52	108	108
2*	39	78	44	88
3	254	762	250	750
5	672	3,360	777	3,885
7½	120	900	127	952.5
10	80	800	81	810
15	53	795	70	1,050
20	25	500	32	640
25	25	625	52	1,300
30	17	510	10	300
40	25	1,000	16	640
50	12	600	14	700
60	6	420	10	600
70	....	....	1	70
75	1	75	7	525
80	....	....	1	80
85	....	....	1	85
100	....	....	6	600
Over 100	13	†5,525	8	‡1,770
Total	**1,990**	**16,427.75**	**2,603**	**15,640.5**

*Data on the smaller size air conditioners is by no means complete. Permits are taken out to cover the installation of such units only under some circumstances, all residential installations being exempt.

†Includes a 125-hp. machine, 160, two 200's, two 250's, a 290, 300, 350, 400, 600, and two 1,200-hp. units.

‡Includes a 110-hp. machine, two 135's, a 175, two 200's, a 300, and a 515.

U. of Nebraska Lets Bids on Food Laboratories

LINCOLN, Neb. — Although bills have been introduced in the current state legislative session to eliminate construction of public buildings during the national emergency, the University of Nebraska board of regents has accepted low bids on two proposed building projects which involve major refrigeration and air conditioning installations, because they are considered vital to food production in time of emergency. They are meat and dairy laboratories at the College of Agriculture which is located in Lincoln.

The board of regents is asking the legislature to make an exception for the two buildings in pending building "freeze" legislation. Dean W. V. Lambert of the agricultural college explained that the proposed buildings would contribute to the "critical problems of food production if war should occur."

Cost of the meat laboratory is to be $284,310, and the refrigeration storage and air conditioning contracts have been awarded to the George Knapp Co. of Lincoln, $14,900, and Natkin & Co. of Omaha, $84,290, subject to approval of the state legislature.

Natkin & Co. got the plumbing and air conditioning contract on the dairy laboratory on a bid which was listed at $44,200.

INSIDE DOPE

GEORGE F. TAUBENECK

(Continued from Page 1, Column 1)

an spread from there. Wrong, as usu l. Air conditioning was invented in Phoenix 80 years ago by Pat Mc elligon, a compadre of Jack Sw ling.

'at got the idea from the side-wa of upside-down beer bottles by Go berg's store, where Korrick's is no All the old timers walked along Fi t St. whenever they could, just to et their feet cooled off. So Pat bu himself a cabin with walls of be bottles, cemented together, with th cork ends pointing inward. The co s were strung together in blocks of 0. Early in the morning, when the air was cool, he would put in all the corks. In the evening he would yan a string and pull out 50 corks and the air inside the bottles would spread all over the room. When it warmed up he'd pull out 50 more, and so on.

"One August night, Pat got home extra hot and sweaty. He yanked out all the corks at once and lay down, deliciously cool. From that he caught pneumonia, and died. The community was so scared by his sad fate that nobody dared try air conditioning again for over half a century."

BILL HINSCH

Twin Dilemmas

Present-day advertising executives and sales managers are dismayed and bewildered by the lack of bright young candidates for their jobs—the junior assistants they need so badly.

Obituary columns prove that their worries on this score are valid. Too many high-powered and high-calibre executives are buried in their early Forties and Fifties, just when they should be capitalizing on their know-how and know-why. Because they aren't backed up and relieved by a promising "second team" of ambitious, loyal and youthful heirs-apparent, they burn out too fast and are extinguished too soon.

There are two primary reasons for this *cul-de-sac:*

(1) Mediocre young people shy away from the selling, promotion, and advertising professions because they're so anesthetized to outlandish claims, and so antagonistic to Big Shot Stuff, that they want no part of them. Furthermore, they've been touted off and advised away from business careers by socialistic teachers and preachers who warp and woof tender minds.

(2) Brilliant youngsters lose interest when they hear that selling has become a "science." Like born salesmen, imaginative advertising copy-writers and promising promoters are artists. Colorful personalities themselves, they detest mathematics, accounting, and regimentation. Black figures, gray graphs, and cold interviewers send them racing to the nearest exit.

Nuts to Dignity

Fortune magazine's recent castigation of advertising campaigns designed to sell the American Way of Life has stirred up a lively controversy. Frankly, we think that *Fortune's* editors went overboard. They were too hasty and too all-fired condemning—a trap the super-sophisticated Luce publications fall into often. However, *Fortune's* inadequate pulse-takers may be right on one score:

The mouthpieces of Business have been stuffy and unrealistic in presenting the case for Free Enterprise.

Distraught executives have *hired* ghost-writers to draft their speeches on public policy. They've contributed money to political campaigns, but they haven't electioneered or voted. Over and over again they subsidize false-front teams of "scientific researchers" to ply them with spurious statistics about the attitudes of customers and voters from whom they're deplorably insulated. How can they reveal what they know when they never meet the voters whose minds they want to change?

Executives who trust mountebanks in the mushrooming "management engineering" and "public relations" bonanza fields shouldn't sneer at female relatives who trust astrological horoscopes. 'Tis our contention that honest men who truly appreciate the American Way, practical men who understand how it works and who are held accountable for keeping it alive, are *ducking their most important personal responsibilities.*

Hiding behind a foolish reliance on gray-colored "research," they're golfing and clubbing and consorting with comfortable companions who think and talk and gripe like they do. If they want to know what's going on, and find out how to reverse Socialist tides, they should slide off their High Horses, and quit trying to be dignified and self-sealing.

To cite one false notion, their advertising appeals to the so-called "common man" always ring in that gold-caned, exclusive-club notion of Dignity. "You, too," they condescend, "can become a Social Lion like me, and bask in the sunshine of Palm Beach and Palm Springs."

They're all wrong, these inept "Free Enterprise" campaigns. No matter how thin you slice it, or how oppressively you repeat it, DIGNITY is on the pan nowadays, and has been for a long time. Likewise, adulation of the Conspicuously Rich and Men of Distinction.

Movie-makers found that out—before they lost their last shirts. In the olden, golden days, motion pictures were "a stenographer's dream-world." Not so, today. Lamely and almost too lately, movie producers are emulating successful vote-getters. They're exhibiting pictures which reflect actual problems and real people, instead of "putting on the dog," and picturing scenes of no-longer-existing opulence and luxury.

"Dignity," as such, has no stature nowadays. Long before theatrical impressarios discovered that public attitudes had changed from adoration of dignified Big Shots to suspicion of their motives, cynical local *politicos* were aware of this shift—and got on the ball. That's why undeserving demagogues have reigned (and rusted) too long.

Businessmen ought to test this nuts-to-Dignity theorem for themselves. Likewise, advertising and promotional experts. Truly, the "average man" is allergic to stereotyped displays of inherited or quick-rich wealth, and stuffy political campaigns geared to please The Station-Wagon Hierarchy.

Motor cars pictured in front of luxurious resort hotels leave him cold. Likewise, "high level" persiflage in testimonial advertisements. He can't (and doesn't want to) understand how or why the Upper One-Tenth drinks Old Grandmother and wears lanolized corsets impregnated with Vitamin Q.

Hired minions who reflect their bosses' opinions may "reach" him, but they don't sway him one jot or tittle. That word "reach," beloved by all advertising space salesmen, should be challenged. Advertisements mailed to X thousands aren't equivilent to *real* readers and believers.

Shocking Proposal

Now let's go 'way out on a limb and recommend shockingly drastic action.

Country clubs and exclusive private clubs of every type should be closed for a one-year period.

Then, perhaps, businessmen and writers of advertising would spend more time with their customers and prospects.

Private clubs are mighty comfortable, and belonging to one is a symbol of success. Plushy and reassuring, they soothe and bolster the harried spirits of their *haut ton* members. In time they become hypnotizing, like opium smoking. Birds of a feather get together there and become more and more alike.

On the red ink side of the ledger, country clubs and similar shelters tend to insulate executives behind an Iron Curtain of their own contriving. Worse: on-the-way-up members whose strength of character lacks flint sometimes sacrifice their ideals to *stay* in that expensive, rarefied atmosphere. Then they're lost souls, indeed. They're so scared of losing their positions and upper-bracket incomes that they compromise, turn yellow, and abandon the enterprising spirit and daringly original thinking which moved them up into that atmosphere in the first place. Eventually they respect themselves less and less, churn and fume internally, and lose their grasp on peace-of-mind. Trying to stay atop the slippery surface of that thin upper crust becomes so important to them that they lose contact with the humble people who could help them achieve their goals decisively.

Impotent Rage

Angriest men we've ever met are some of America's foremost citizens. They're so sore about the inroads of Socialism that they're apopleptic. And they have a right to be. Anger, though, doesn't "make friends and influence people." Instead of fighting Socialism on *its* gridiron and on *their* terms, as they should and could, too many businessmen refuse to touch it—and hire so-called "experts" to mismanage their battles. The latter aren't doing the job these patriotic, foremost citizens could do for themselves.

Conscientious executives should ride streetcars and buses occasionally, sit in the bleachers at ball games, go to neighborhood movies, and have a few beers at the corner bar now and then. Instead, they choose the most expensive box seats every time. Consorting chiefly with men of their own stripe in private clubs and cocktail lounges, they fence themselves away from clients.

If private clubs and Cadillacs were padlocked for awhile, the men who could do the best job of fighting Socialism would have the time and the obligation to learn the idiom of the folks they'd like to educate.

Then they'd be able to talk with the so-called "common man," because they'd know him.

Then they might acquire a grand new group of surprisingly interesting friends.

Then they could evaluate the sometimes phoney charts and diagrams and graphs and cold gray figures for which they overpay cold-blooded, incompetent, and occasionally haughty researchers.

Then they'd treat all "surveys" of intangibles—like advertising and public opinion—with proper skepticism.

Then they might learn some of the *real* reasons why confounding human beings seem to act contrarily and inexplicably.

Quotes of the Week

Freedom is placed in jeopardy more by those who will not exercise it than by those who will not permit it. Indifference opens more gates to the enemy than does tyranny.—REV. EDWIN MCNEILL POTEAT.

There can be no friendship where there is no freedom. Friendship loves a free air, and will not be fenced up in straight and narrow enclosures.—WILLIAM PENN.

If we work marble, it will perish; if we work up brass, time will efface; if we rear temples, they will crumble into dust; but if we work upon immortal minds and instill into them just principles, we are engraving that upon tablets which no time will efface, but will brighten and brighten to all eternity.—DANIEL WEBSTER.

They'll Do It Every Time . . . . By Jimmy Hatlo

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

Trade Mark registered U. S. Patent Office; Est. 1926

AIR CONDITIONING AND REFRIGERATION News

Copyright 1951, Business News Publishing Co.

F. M. COCKRELL, *Founder*

Published Every Monday by BUSINESS NEWS PUBLISHING CO.
450 W. Fort St., Detroit 26, Mich. Telephone Woodward 2-0924.

Subscription Rates: U. S. and Possessions, Canada, and all countries in the Pan-American Postal Union: $5.00 per year; 2 years $8.00. All other foreign countries: $7.00 per year. Single copy price, 20 cents. Ten or more copies, 15 cents each; 50 or more copies, 10 cents each. Please send remittance with order.

GEORGE F. TAUBENECK
Editor and Publisher

PHIL B. REDEKER, *Editorial Director*

C. DALE MERICLE, *Associate Editor*

JOHN SWEET, *Assistant Editor*
HUGH MAHAR, *Assistant Editor*
GEORGE HANNING, *Assistant Editor*
ROY DENIAL, *Assistant Editor*
Editorial Assistants: MARGARET DEAN, MARGARET POMMERENING.

E. L. HENDERSON, *Business Manager*
ROBERT M. PRICE, *Adv. Representative*
ALLEN SCHILDHAMMER, *Adv. Rep.*
ALLEN S. RUSSELL, *Adv. Rep.*
BETTY JANE TULLOCH, *Adv. Secy.*
WALTER J. SCHULER, *Production Mgr.*
JOHN F. JOLIAT, *Circulation Manager*

Member, Audit Bureau of Circulations. Member, Associated Business Papers.

VOLUME 62, NO. 4, SERIAL NO. 1,140, JANUARY 22, 1951

"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—*Charles A. Dana.*

Wait 'Til the Girls Hear About This

WHEN THE WRITER was a freshman in high school, he tried out for the debating team. The two propositions we were asked to argue ran about as follows:

1. RESOLVED: That America must adopt the closed shop.
2. RESOLVED: That woman's place is in the home.

Without hesitation, we chose the negative side of both propositions. And nothing we have observed and learned since has provided a single decent reason for changing these early adopted attitudes. Of course, not everybody will agree with these premises. For instance: In taking exception to a recent editorial in the NEWS, a subscriber wrote:

"What will become of our family life, our ideals and our homes when all the women become emancipated? . . . I do not think any normal woman when she is young and still has her ideals has any greater desire than to live and do all her work in her own home. . . . This is the way God intended man to live."

Our notion is that this may be the way most *men* want to live, but it isn't the way God intended *women* to live.

There's an old story about a militant equal-rights-for-women exhorter who, in the middle of her speech, shouted:

"There are only minor differences between men and women."

From the back row of her audience a man arose and heckled:

"Thank the Lord for those minor differences!"

To men, that may seem funny. Nevertheless, the equal-rights-for-women advocate was right. Women are human beings, just like men. They have the same varied endowments of talent, the same differences in taste, the same disimilarities of physical and mental capacities. The day when we men could subjugate them and enslave them ended in an inglorious sunset several decades ago.

Some women, to be sure, are content to spend 14 hours a day cooking, cleaning, sewing, scouring dishes, making the beds, dusting, rinsing diapers, weeding the garden, buying groceries, putting up a Good Front for the Old Man, and minding the children. Some of them even possess natural talents for all these various forms of day labor. But they are the exceptions which prove the rule.

"What will become of the family, and the children," one subscriber asks, "when women become emancipated?"

Friend, that universal system of slavery to household manual labor helps explain the fact that one marriage in three today ends in divorce. When women must drudge all day at menial tasks they hate, their children suffer. And so do their husbands.

The subscriber accused us of advocating the increased use of home-labor-saving appliances because we want to help the Big Corporations "bring in the necessary dough."

Nuts. That's important, sure. But it isn't nearly so important as is anything which will help "free the slaves" (the women).

The hired "maid" is fast disappearing from the American scene. The answer to this phenomenon—not only for those who can afford "help" but for the wide majority of families which can't—is the more widespread distribution of time-saving, labor-saving, nerves-saving modern electrical appliances.

Any man who doesn't want to "emancipate" women from their tradition-appointed burden will have some explaining to do when the women hear about it.

'Utilities, Push Room Coolers!'

Unit Can Lead Appliances as Residential Load Builder, Power Companies Told In Plea for Strong Support

By F. B. Frazee, The Calcasieu Lumber Co., Distributor In Austin, Tex.
(From a Talk Delivered Before Utilities In Central Texas)

Our purpose in appearing before you is four-fold. We would like to acquaint you with the residential line of air conditioners. We wish to tell you something of sales efforts which the air conditioning industry is making to secure increased business for us both. We intend to develop those features which should make this load attractive to you. Finally, we intend, because we are salesmen, to ask for the order.

The term "air conditioning" was coined less than 50 years ago. Its early use implied refrigeration. It was later defined as the control of temperature, humidity, circulation, filtering, and ventilating. Since that time the term "air conditioning" has been applied to almost any product represented as doing any one of the true functions.

Fortunately for the electrical utility industry most "air conditioners" circulate air and utilize electric energy for this purpose.

FEW ATTEMPTS TO DEVELOP UNITS PRIOR TO 1932

The first air conditioning installation for comfort cooling was made in 1922. Prior to the introduction in 1932 of the refrigerant "Freon-12," there were few attempts to develop summer air conditioning systems of residential size. A recent history of the business states that Frigidaire marketed a room cooler in 1928. The first Philco-York unit was marketed the following year and the first Carrier unit in 1932.

Practically all of the name-brands associated with refrigeration have been active in this business in the past. With the exception of those mentioned, few of these manufacturers have kept a line of room air conditioners on the market.

"Manufacturers found the air conditioning business an expensive and exasperating hobby," to quote from George Taubeneck's *Great Day Coming*. Prior to the war it has been estimated that a total of only 130,000 units were sold.

With the exception of television, room air conditioning is America's fastest growing major appliance industry. In its 10-year history prior to the war its growth increased approximately 25% per year. That rate, increased slightly just after the war, appears to be a rate of demand we can expect to maintain for some years.

The earlier pioneers in room air conditioning did not offer much and promised less. The first sales manual on room air conditioners stated that dealers were to sell one unit, install it in a convenient window. If the unit did not cool the room to the owner's satisfaction, they were to sell another for the adjacent window.

Such practices are not ancient history. Only two years ago a dealer sold five room air conditioners in a five-window cafeteria at Decatur, Ill., that had been estimated at 10 tons. I personally attribute my inability to sell a manufacturing concern a 30-ton system for its general offices to the fact that a room cooler of the same brand failed to cool all of the offices of all the officers. Believe it or not, they had a supply duct system on a ¾-hp. air cooled unit taking in all outside air.

It takes some know-how to sell package air conditioning. It takes about 15 minutes to learn how to make simple load calculations on a convenient form. One of the small units will usually cool an average room. If the unit the customer is willing to buy, will not do the job, you dare not accept the order. People will be more uncomfortable in an inadequately cooled house or office than with no conditioning and the windows open. It is as dangerous for a salesman to sell a "little cooling" as for a woman to be a "little pregnant."

Proper sizing was not the only problem of early applications. Frequent and costly repairs made for both dealer and user dissatisfaction. Today leading manufacturers are placing the same five-year warranty on room air conditioners that the public has come to expect in domestic refrigeration. A low failure rate is assured through the use of full hermetic refrigeration circuit.

For the moment, let us consider the feature selling point of those room air conditioners of 1-hp. or less—the size for almost any residential room.

1. They are compact. No valuable space is sacrificed and no alterations need be made.

2. There is a size of ample capacity, carrying a full five-year warranty, employing a safe refrigerant.

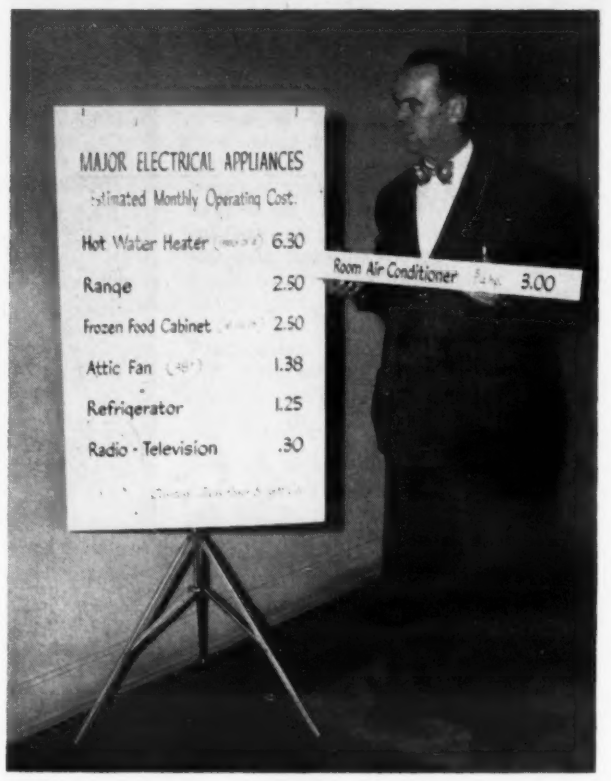
3. The unit is handsome, distinctive, and pleasing in appearance.

4. Water is not required for condensing purposes nor are condensate drains required.

These coolers offer the following advantages:

To maintain life, we must have food, water, and air. Each day the average man will require:

Three to 4 lbs. of food.
Four to 8 lbs. of water.
Thirty-four pounds of air.



F. B. Frazee of Calcasieu Lumber Co., Austin, Tex., uses a chart to show utility men that room air conditioners rank second only to water heaters as a monthly load factor.

A great deal of modern education and research have been spent on the selection and preparation of our foods. Little thought is taken of the source of some 60% of our energy.

Man breathes about 17 times a minute during which he inhales air containing 21% oxygen and 4/10 of one per cent carbon dioxide. The remainder is mostly nitrogen together with bacteria, pollen, dust, dirt, and other impurities. Air exhaled contains 15% oxygen and 4% carbon dioxide. This decrease in oxygen and increase of carbon dioxide makes necessary fresh air to displace accumulating objectionable odors.

IMPORTANCE OF FILTERED AIR TO PERSONAL HEALTH

Dust and dirt drawn into the lungs accumulate to form coatings which decrease the lung capacity and make them more susceptible to disease. Such particles in the air often are bearers of bacteria which cause colds and many nasal, sinus, tonsil, and lung ailments. The Metropolitan Life Insurance bulletin on hay fever recommends air conditioning as a filtering media highly important to the safeguard of health.

In the catagory of filtering is the protection of the home itself. Cleaning and redecorating costs are reduced and the drudgery of house cleaning is lightened.

Circulation of air is an important aid to comfort. Room air conditioners will supply a room with as much as 10 changes of air an hour. Without circulation room air may vary 15° between floor and ceiling. With circulation this difference is reduced materially, resulting in a more comfortable and healthful atmosphere. The mechanical circulation of fresh filtered air during seasons when cool-

(Continued on next page)

Photo Courtesy—Wyatt C. Hedrick, Architect and Engineer

Plug Conditioned Air, Not Air Conditioning Frazee Advises, Urging Constructive Selling

(Continued from preceding page)

ing is not required assures a comfortable atmosphere free from stagnant air, dust, and dirt.

The more successful the industry is in selling room air conditioning for the reasons stated above, the greater is our market.

'SELL HEALTH FEATURES'

Because a refrigerated air conditioner is purchased largely for cooling, we experience an impulse market which makes the peaks resemble the weather chart. If we can sell those features first mentioned we have created a customer rather than filling a need, thereby enlarging our market. Such methods do exist. A frequent speaker on this subject, Hal Wheler of Air Comfort, Inc., of Chicago, attributes their national leadership and a steady 12-month-a-year volume in the sale of Carrier units to such constructive salesmanship. It is time to sell "conditioned air" rather than "air conditioning."

Here in Texas in 1949, which was very nearly an average year, we had a total of 1,963 hours during which the temperature exceeded 80°; of these, 1,163 hours were above 85° and 596 were above 90°. Or to approach it by days, there were 198 days on which the temperature exceeded 80°, 142 days during which the temperature exceeded 85°, and 114 above 90° F. There were 24-hour periods when 20 of the readings for the period exceeded 80° and the usual hot successive weeks when 70% of the readings exceeded this temperature.

The year 1949 was an average year in that no record "highs" were established. To look for a moment at the extremes reported by the Austin weather bureau, we find that in this locality temperatures have exceeded 80° the year-round and have exceeded 90° in all but December and January. Cooling then is not confined to a five-month period in this area.

Nor is the operation of room air conditioners.

'USE THE USER'

To prove such a story the salesman must use the user. The user must be sufficiently well-known to be recognized. He must be successful to the extent that he is respected but not so wealthy that prospects will feel that only the user can afford room air conditioning. Incidentally, he should be using the brand you sell.

Our candidate for "ask the man who owns one" is Martin Hyltin. I am sure everyone in LCRA knows him. Hyltin reports that he has a room air conditioner at home and that he'll never be without one. He states that he runs his cooler daily. He says he enjoys a good night's sleep now. In the past he's had an asthmatic condition that bothered him at night.

Maybe everyone used the cooler daily, maybe not. We would like to be able to tell you electric utility people that with 1,163 hours above 85° in a season we could reasonably expect 1,000 hours of compressor operation. Earl McGee, of McGee Electric Co., at San Marcos, sold one this summer, then had to rush the new service to complete the installation before the owner left for a two-month vacation in Colorado.

We do know that the residential power load is at its minimum during summer months. Then the long evenings provide illumination almost until the average family's "sack" time. Hot days are accompanied by summer menus of cold cuts and salad dishes which reduce cooking time. Tepid showers replace the hot bath and with jacket losses low, the water heating demand is down. The frozen food cabinet, the electric refrigerator, and air conditioning units are the only items offering a summer demand increase.

POWER USE, STARTING INRUSH

On some of the questions you might ask involving electric service we can be more specific.

The ½-hp. units draw approximately 880 watts; the ¾-hp.—1,250 watts, and the 1-hp. unit—1,600 watts. I do not believe the ½-hp. unit is offered in other than 115-volt. The ¾-hp. unit is available in both 115-volt and 230-volt and the 1-hp. in 230-volt only. All are single phase.

The starting inrush is high on these units, causing line surges. The use of temperature and humidity controls have always been questions which provoked a lot of conversation. In theory it is good. In a new building where the wiring is adequate and the equipment is properly installed, a thermostat can be used without any bad effect. In larger cities where multiple units are installed in a given building the use of the thermostat is frowned upon because of the heavy surges on the lines which cause flickering lights in other offices. Some cities have passed ordinances against the use of thermostats. Others have limited the use of ¾-hp. units to 230-volt lines.

The topic of selling room air conditioners as a "plug-in device" was discussed at the meeting of the International Association of Electric Leagues in Boston. As reported by AIR CONDITIONING & REFRIGERATION NEWS, the practice was questioned.

(Concluded on next page)

1949 HOURS

	above 80°	above 85°	above 90°
JAN	3		
FEB			
MAR	7		
APR	42	6	
MAY	260	113	35
JUNE	365	234	114
JULY	440	305	186
AUG	384	265	168
SEPT	303	188	93
OCT	110	47	
NOV	43	5	
DEC	3		
Total	1963	1163	596

Courtesy U.S. Dept. of Commerce Austin Weather Station

Means and Extremes 52 YEAR TEMPERATURES

	COLD		HOT	
	Record	Average	Average	Record
JAN	-2	39.2	59.8	88
FEB	-1	42.7	64.1	92
MAR	18	49.8	71.6	96
APR	30	57.2	78.4	99
MAY	40	64.5	84.6	104
JUNE	51	71.0	91.3	106
JULY	57	73.6	94.4	108
AUG	58	73.0	94.6	109
SEPT	41	67.8	88.8	103
OCT	30	57.2	79.4	100
NOV	20	47.9	69.1	91
DEC	14	41.0	61.0	85

Courtesy - U.S. Dept. of Commerce Austin Weather Station

ROOM AIR CONDITIONER HOURS

Estimated Hours Operating Time DALLAS AREA		above 85°	above 90°
JAN			
FEB			
MAR		6	
APR		113	35
MAY	150	234	114
JUNE	180	305	186
JULY	300	265	168
AUG	400	188	93
SEPT	170	47	
OCT		5	
NOV			
DEC			
Total	1200	1163	596

Courtesy - Texas Power & Light Co. Courtesy U.S. Dept. of Commerce Austin Weather Station

WEATHER CHARTS were used by Frazee to show a Texas utility group the steady load factor that they can expect to gain from air conditioner users.

No Need To Sell Room Air Conditioners As Plug-In Appliances, Frazee Tells Utilities

(Concluded from preceding page)

Consensus was that the industry might suffer a 'black eye' if room cooler purchasers discovered later that they must pay extra for installation of a separate wiring circuit for units sold to them without qualification."

Our practice in Austin has been to restrict the sale of ¾-hp. units to 220 volts. It has cost us sales and we are going to relax this policy. When we sell a ¾-hp. unit on 115-volt service we are going to make the responsibility for power an exception to our warranty. We much prefer to sell the 220-volt units knowing that new service will have to be carried to the location of installation. We do not believe that the electric range has to be sold as a plug-in appliance nor do we feel that it should be true of room air conditioning.

We have asked many utility companies to give us an estimate of room cooler loads or running time in the course of preparing this talk. There appears to be little available factual information on the subject of operating time. A study of consumer operating habits by metering a number of installations is in order.

For example, Edison Electric Institute quoting from American Institute of Architects indicates 4.4% of Chicago weather is above 85° or 385 hours of operation of air conditioners. Commonwealth-Edison of Chicago estimates 900 hours. The Texas Power and Light Co. estimates the average user in Dallas will operate a room air conditioner 1,200 hours a year, which parallels our 1,163 hours above 85° F. T. P. & L. breaks this estimate down to 150 hours in May, 180 hours in June, 300 in July, 400 in August, and 170 hours in September. Our operating figures are predicated on this estimate.

Estimates of operation we have attempted to secure from the comparison of power bills do not follow any pattern. Typical of this is a letter we received from D. D. Nixon, manager of the Lampasas Public Utilities. Lampasas has an extremely favorable residential power rate, using a 1-cent rate after 160 kwh. and 4 mills over 400 kwh.

Nixon writes, "The users about whom you inquire are very conservative and as the old gentleman is at home, the units have closer control than if they were on thermostats.

"For ordinary use they use only the ¾-ton unit in the sitting room. This unit runs about 18 hours a day. The bedroom unit runs 3 to 4 hours. During the August billing period they had company and all four units ran a large part of the time, say 10 hours per day average.

"With no other increase the following is a list of their bills of the last quarter compared to 1949:"

	KWH	Amount
July, 1950	1,766	$12.51
1949 (avg.)	783	7.29
Difference	983	5.22
August, 1950	3,168	23.51
1949 (avg.)	783	7.29
Difference	2,385	15.22
September, 1950	1,866	13.25
1949 (avg.)	783	7.29
Difference	1,083	5.96

Nixon closes his letter with the statement "From the above you can see that for anyone who can afford to air condition, the power bill would certainly not be prohibitive."

The users of whom Nixon writes enjoyed an air conditioned home this summer at a cost, for the period reported, of $26.40. The Lampasas Public Utilities increased its load by 4,451 kwh., which was largely off-peak consumption.

The ¾-hp. room air conditioner draws 1,250 watts. Using the Texas Power & Light estimate of 1,200 hours at a 2-cent per kw. rate, we find the seasonal operating cost to be $30. When using only the fan the current consumption is 170 watts and will be operated an equal number of hours a year in temperate weather at a cost of $6. The total cost is equivalent to $3 per month which on an annual basis makes a ¾-hp. room air conditioner a load second only to the hot water heater in the appliance field. And again we would like to point out that the hottest periods of the day will usually be between 2 p.m. and 4 p.m.—an off-peak period.

H. L. Laube of the Remington Corp. in addressing the ASRE Room Air Conditioning Conference in December, pointed out that "every prospect for one air conditioner, if satisfied with his first purchase, is a prospect for at least one more."

In other words, room air conditioning can be the greatest single residential appliance load. Few, if any, householders would purchase a second water heater or range but the family of four we used in our water heater estimate does not sleep, eat, or lounge in a single room.

In seeking markets for room air conditioners, the industry has established distributors in every major center of population. These distributors are in a position to supply dealers at every crossroad in the country with literature, cooperative advertising, sales training assistance, load calculation forms, canned sales talks, equipment, repair parts, and components. The manufacturers advertise in the national publications and cooperate at all levels.

The aggressive distributors are seeking live-wire dealers to move this product to the consumer. But a dealer cannot sell from a catalog or piece of literature. He stocks, sells, installs, and services his equipment. He advertises and in other ways utilizes the national promotion and assistance.

An inquiry to any of the manufacturers of room air conditioners will bring you a man to tell this story to your locally sponsored meetings. At the outset of this talk I said I was going to *ask for the order*. In part, I have. We will welcome your invitation to put on this type of a meeting for the dealer in your locality.

But if the load represented by room air conditioning is attractive to you of the electric utility industry you must go further.

ONLY 1 OUT OF 2 UTILITIES PLAN ROOM COOLER PROMOTION

In the 1950 Statistical and Marketing Issue of last January, *Electrical Merchandising* reported that only 48.8% of the utility companies in the United States expected to do any merchandising and only 40% contemplated any effort in Texas.

Manufacturers, distributors, and dealers all attempt to do their part in a merchandising program. For the most part, the manufacturer employs the national coverage of consumer magazines; the distributor, direct mail to potential and franchised dealers. The aggressive dealer uses newspaper, direct mail, and radio. Frequently the entire effort is met with outright hostility by the local utility. Telephone checks on the cost of operating an electric range frequently exceed actual operating costs by as much as four times. Granted that this may sometimes be attributed to generating capacity shortages, it is more frequently caused by apathy and ignorance.

The life span of the average electric appliance store is only a few years. *Electric Merchandising* noted that 8% of the dealers in existence at the beginning of 1949 were out of business at the end of the year. And 1949 was a good year!

The dealer must concentrate his efforts on good prospects and look for the quick dollar if he is going to keep his doors open. On the other hand, like taxes, the utility companies are here to stay. Only the utility can make the effort at the local level to promote for the future.

We do not ask that the electric utility industry be wed to a single manufacturer of air conditioning equipment. You can be non-partisan, as Harry Truman might say. Promote room air conditioning. Show a willingness to accept envelope stuffers from the dealer brazen enough to ask such assistance. Let the architects, builders, and contractors know that electric refrifieration and air conditioning offered competitively as a result of American ingenuity, American investment, and American integrity is the purehaser's best buy. Develop methods for supplying temporary power service that make home demonstrations of major appliances practical. Make a promotional effort to see that one or more three-prong convenience outlets are installed convenient to openings whenever a new 220-volt service is supplied to a residence.

The *Ladies Home Journal's* advertising theme for years has been "Never Underestimate the Power of a Woman." From Eve to Pandora the will of women has been established. Who knows to what heights the air conditioning industry can be raised by an empty receptacle.

Freezer Owner Service

Colorado Locker Plant Operator Doubles His Meat Sales By Catering to Owners of Home Freezers

ENGLEWOOD, Colo.—An increase of more than 100% in retail meat sales has been rung up by L. L. Crocker, head of South Broadway Lockers here, through setting up a special "home freezer own service" in cooperation with local appliance retailers and those in nearby Denver.

"We are selling as much meat for home freezer storage as for storage in our own 600 lockers," Crocker said. "The volume is increasing rapidly as more and more homeowners buy new home freezers."

Crocker hit upon the "freezer owner service" idea after studying statistics on the sales of home freezers in Colorado. In addition, he noted that many homeowners, unable to rent space at South Broadway Lockers, still had considerable storage space available at home due to the ownership of a home freezer.

To capitalize upon the huge amount of additional home storage space represented by home freezer owners, Crocker developed the following plan:

First, he sent a direct-mail letter around to all home freezer dealers in the Denver and Englewood area, offering a 10% discount on meats purchased in large quantities.

This made every appliance dealership in the area an indirect "selling organization" for his meat department. Appliance dealers were glad to cooperate, inasmuch as the offer gave them an extra worthwhile sales point in promoting home freezers.

To capitalize upon the 10% discount, all the customer had to do was present certification from an appliance dealer that he has purchased a home freezer.

After presenting certification, an account was set up for him so that he could purchase all his meat at the 10% discount—plus the advantage of even a bigger discount where a larger quantity was purchased.

The plan permitted the home freezer owner to enjoy the same processing charges as the person who was renting a locker.

Over a period of months it is believed the savings in meat purchases alone, will pay a large part of the home freezer cost.

Crocker feels that it is far better to "go along with the trend rather than fight it." Therefore, he cheerfully encourages prospective locker renters to buy a freezer in cases where he cannot provide them adequate space.

"Experience with home freezers, surprisingly, quite often leads to locker rental," he indicated. "Because once the homeowner realizes the major savings which are possible through the use of the home freezer, he begins to want more refrigerated storage space, and the advantages of processing, packaging, etc.

"The result is that there are now many customers who both own a home freezer and rent locker space at the same time."

Current Literature Available

To obtain further information on the literature listed below, please refer to key number preceding listing. Please use the "Information Center" form on "What's New" page.

Easy-To-Learn Style Used In Soldering Book

—KEY NO. M-140—

EASTON, Pa.—A revised edition of "Soldering Tips," 20-page pocket manual of soldering, has been announced by Weller Electric Corp., here, maker of Weller soldering guns.

Designed as a reference for professionals and a simplified soldering "course" for newcomers, the new handbook is said to cover "every important phase of soldering in easy, understandable style." Time-saving methods, do's and don't's, fluxes and solder tables, and difficult operations are discussed in non-technical language. Step-by-step illustrations are included.

Copies of "Soldering Tips" may be obtained by sending 10 cents in coin to Weller Electric Corp.

Manual Explains Proper Gas Appliance Venting

—KEY NO. M-141—

BELMONT, Calif.—A comprehensive booklet entitled "Venting of Gas Appliances" has just been published by William Wallace Co., manufacturer of Metalbestos gas vent pipe. The manual deals with the basic requirements for proper venting of gas appliances.

It was prepared under the supervision of C. E. Blome, Metalbestos midwest division manager, from research material and field data collected over a period of time by the company from universities, independent laboratories, appliance manufacturers, and gas utility companies.

Copies may be obtained free of charge by written request.

Kit Contains Complete Dispenser Sales Plan

—KEY NO. M-142—

EVANSVILLE, Ind. — A complete sales plan for the Ajax "Dial-A-Drink" soft drink dispenser has been prepared by the Ajax Corp. of America for the use of its salesmen.

The kit consists of a salesman's manual, product pictures, news releases, warranty certificate, sales promotion suggestions, and insert pages for the "Dial-A-Drink" sales presentation.

Catalog Covers Line Of Superior Valves

—KEY NO. M-143—

PITTSBURGH—Superior Valve & Fittings Co. here has released a new 24-page catalog of its complete line of refrigeration and air conditioning valves, fittings, and accessories. Each item is illustrated and details such as size, dimension, end connections, price, and weight are given.

The catalog is called R-4.

Viking Designs 3-Piece Humidifier Promotion

—KEY NO. M-144—

CLEVELAND—Three new pieces of literature—a catalog price sheet and two envelope stuffers—have been issued by the Viking Air Conditioning Corp. to cover its recently introduced "2300" furnace humidifier.

Envelope stuffer No. 458 is a detailed descriptive piece in two colors, including 23 photos covering speedy installation, the adaptability of the 2300 to all furnaces, dimensions, and such points of advanced construction as the PC foam glass R float. One section is devoted to consumer benefits of proper humidity. It folds to fit easily into a billing envelope.

The second envelope stuffer, No 469, details the need for proper humidity in all warm air heating systems and is slanted for the consumer.

The dealers catalog price sheet includes descriptive copy and photos of the "2300," and lists dealer net prices for the humidifier and humidification accessories. Catalog numbers and all ordering information is printed on this sheet.

Viking promotion literature is available free in reasonable amounts to all dealers and distributors.

New Bally Circulars Give Commercial Data

—KEY NO. M-145—

BALLY, Pa.—A new series of full color circulars describing and giving complete specifications on the Bally line of commercial refrigeration equipment have recently been released by the Bally Case & Cooler Co. here. The circulars cover the company's walk-in coolers, wall cases, open style cases, and its Coldisplay.

Booklet Describes Use Of Walton Humidfiers

—KEY NO. M-146—

IRVINGTON, Ill.—A new booklet entitled "Industrial Humidification" was recently published by Walton Laboratories, Inc., here.

The booklet evaluates the use of Walton equipment in many varied types of industry and gives specifications data on the various Walton humidifiers for industrial applications.

* * *

Self-Service Cooler Triples Canned Beer Sales

PANAMA CITY, Fla.—Installation of a self-service "bottle cooler" for canned beer, has more than tripled sales during 1950, for Carl's "Bottle Stopper," drive-in package liquor store on Highway 98 here.

Whereas formerly, it was necessary for a salesperson to go either to a reach-in or walk-in refrigerator at the rear of the store, and bring out bottles of chilled beer, to request, 90% of Carl Fernandez' regular customers now "serve themselves" from the self-service refrigerator. With three sliding doors and three compartments contained within, the big refrigerator will hold 50 cases of canned beer, arranged into neat rows to show 12 leading, nationally-favorite brands.

In the space where the compressor was formerly operated, is a handy rack for dispensing can openers, paper sacks, and cartons, in the event the customer wishes to carry six home.

The refrigeration unit, for more economical, safe operation, has been moved outside the walls of the store, where a galvanized metal housing, extending out from the wall, protects it from heat, etc.

"Our chilled beer is now sold almost exclusively cafeteria style," Fernandez said. "Customers merely helping themselves, filling up a sack, and paying the cashier immediately across from the refrigerator case. Its mere presence, right behind the windows of the store, attracts a lot of attention, and as a result, the number of customers who wheel into the convenient parking lot outside, help themselves to beer, and go on their way, is 300% greater than it was at this time last year."

When Will Frozen Milk Sales Be Feasible?

Emergency May Curtail Output of Low Temperature Equipment Needed To Store and Transport Nearly Perfected Concentrate

WASHINGTON, D. C.—How soon will frozen concentrated milk be commercially feasible for sale through retail stores and for home delivery?

The answer hinges partly on the results of current experiments by leading dairy companies, and partly on the availability of refrigeration and storage equipment, whose production likely will be curtailed as the country moves deeper into a mobilization program.

The U. S. Department of Agriculture, however, has just sounded an encouraging note on the progress of development of frozen milk concentrate. It reports that recent investigations by the Bureau of Dairy Industry "indicate that it is possible to produce frozen concentrated milk that will remain acceptable as a source of beverage milk for several months after it goes into frozen storage."

REFRIGERATION INDUSTRY PRAISED FOR PHENOMENAL SUCCESS

Certain technical problems of production and distribution still must be worked out before the product can be marketed satisfactorily through regular commercial channels. The bureau credited improvements in refrigeration equipment and the phenomenal success of frozen concentrated orange juice with spurring the technical development of frozen milk.

Should milk concentrate become widely accepted on the consumer market, it would mean a substantial increase in demand for several types of refrigeration equipment. Retail stores would need more zero storage space to stock sufficient concentrated milk. House-to-house delivery trucks would also have to be equipped with suitable refrigeration devices to maintain zero or sub-zero temperatures.

In the experiments just concluded by the Bureau of Dairy Industry, the frozen concentrated milk was prepared by heating whole milk at a high temperature—155° F. for 30 minutes, or 170° F. for 1 minute—homogenizing it at 2,500 lbs. pressure, concentrating it to one third its volume, cooling, sealing in containers, and then freezing.

8 WEEKS FOUND TO BE STORAGE MAXIMUM

When the frozen product was stored at a constant temperature of -10° F. or lower, there was little change in flavor or body for eight weeks. Some samples kept much longer. But generally speaking the flavor tended to become unsatisfactory after eight weeks. When the milk was stored at temperatures higher than -10° F., serious defects soon developed, giving the product a curdy or flaky appearance when thawed and reconstituted.

The experimental work also indicated that when the milk was concentrated to one fourth its volume and frozen and stored at -10° F., its storage life was somewhat shorter than when it was concentrated on a three-to-one basis.

On the basis of research to date, the government scientists conclude that the concentrated milk should be frozen at a rapid rate—that is, in a few hours—and stored at not less than -10° F., the rate of freezing being less important than the storage conditions.

The bureau emphasized the need for adequate refrigeration throughout the entire distribution progress. It explained that because the protein in the milk tends to become insoluble at temperatures above -10° F., the frozen product should be moved through every stage of its distribution at that temperature, or maybe lower.

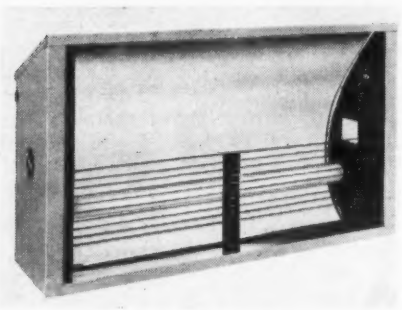
WAR MIGHT STIMULATE INTEREST

During World War II considerable interest developed in frozen concentrated milk for use on hospital ships and in distant places where U. S. troops were stationed, but the product did not prove wholly satisfactory because of lack of proper storage conditions. It is quite possible that in the event of another war, efforts will be made to provide frozen milk on a broader scale than in the last war, and under better storage conditions.

What's New

When requesting further information on new products, please use "Information Center" form.

Air Purifier Designed With Eye to Safeguards



——KEY NO. A-140——

CHICAGO—Now on the market is an air purifier which is described as "capable of providing a virtual germ-free atmosphere in public places."

The device, called the "Air Tron Louvered Upper Air Unit," is manufactured by Roy C. Stove & Co., here. It uses ultra-violet germicidal rays to create "outdoor purity and freshness."

The fixture has three outstanding characteristics, according to the company: "maximum ultra-violet output; maximum travel of germicidal energy through bacteria-filled air; and minimum ultra-violet below the fixture level and on nearby ceilings."

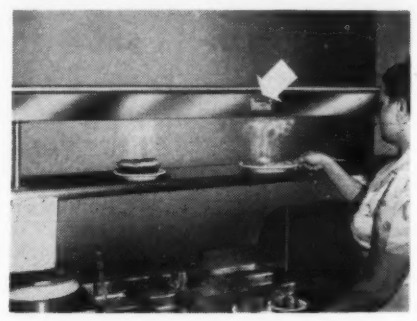
An Alzak unit with crackled finish, it is equipped with two key-slots for easy mounting in any position, and is furnished with cord and plug. In addition, it can be recessed in the wall.

The unit is designed to direct ultra-violet rays across the upper area of a room without reflecting the rays from the ceiling down into the room. This is said to curtail the possibility of injury to the skin and eyes of those present.

Cylindrical design of the fixture's aluminum reflector, plus proper placement of the louvers, guides germicidal energy across the upper air, the company pointed out. Natural convection currents of air pass upward through the killing rays and then downward again through the same beam.

The unit's ultra-violet lamp is claimed to have a life expectancy of 4,000 hours (approximately six months of continuous service). Lamp renewals can be made at nominal cost.

The eight-watt unit, which retails at $19.10, reportedly provides air-purifying protection for an area up to 80 sq. ft. The 15-watt unit retails at $25.50, for areas up to 150 sq. ft. For areas up to 425 sq. ft., the 30-watt unit, retailing at $44.50, is recommended.



'Warmerlater' Reduces Food Serving Losses

——KEY NO. A-141——

NEPONSET, Mass. — Called the "Warmerlater," a new piece of food service equipment made by Peters & Co., Inc., reduces food losses due to delay in waitress pick-up from the kitchen.

The device is thermostatically controlled. It automatically keeps food hot without over cooking. The highly polished stainless steel upper shelf gives extra storage space for storing dishes, keeping them warm.

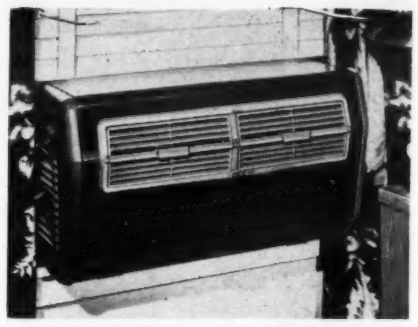
"Deflected Radiant Heat" is the engineering principle used in the Warmerlater. Zerocel insulation with a "K" factor of .24 is used to prevent escape of heat. It is fire resistant, does not harbor vermin and will neither rot or decay.

The nickel chromium alloy heating element is embedded in a semi-vitrified refractory. All wiring is done in conformity with the National Underwriters Code. All models are available in 115 or 230 volts a.c.

The thermostatic control is preset at the factory.

Some Additional Items Displayed During the Winter Marts

KELVINATOR HOME FREEZER: Rustle up a treat, Mom and no tricks was the theme of this tableau showing Kelvinator's new 9-cu. ft. freezer with a storage capacity of 325 lbs.



PHILCO WINDOW SILL CONDITIONER: Model 50-G was shown at the Philco display for rooms with a floor area up to 250 sq. ft. The unit eliminates need for opened windows and has a hermetically sealed power system with a five-year warranty. "Pump out control" is designed to rid room of stale air.

LECTRO-HOST RANGE: This 1951 model features the new concealed oven unit, to replace the former rod-type unit. The upper portion of the usual storage area has been converted to a warming area for keeping meals hot.

Information Center

For *more information* on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

What's New or Current Literature Available

Key No. ..... Key No. .....
Key No. ..... Key No. .....
Key No. ..... Key No. .....
Key No. ..... Key No. .....

Products Advertised
(list name, page and issue date)

.....
.....
.....
.....
.....

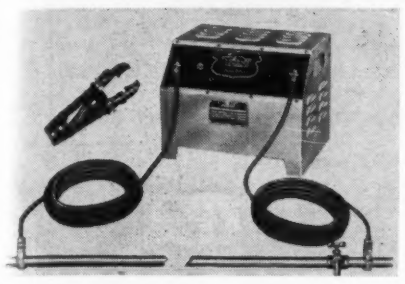
(PLEASE PRINT PLAINLY)

Name ..... Title .....
Company .....
Street .....
City ..... Zone ..... State .....
Type of Business .....

MAIL THIS FORM TO
AIR CONDITIONING & REFRIGERATION NEWS
Reader Service Dept.,
450 W. FORT ST. DETROIT 26, MICHIGAN

What's New (Con't)

Therm-O-Tron Thaws, Solders, and Brazes



——KEY NO. A-142——

CHICAGO—A new, improved Therm-O-Tron for thawing frozen water pipes and for heating pipes carrying non-inflammable liquids has been announced by Trindl Products Ltd. here.

For year-round use, the electronic device can be equipped with a new soldering and brazing attachment, which is also available from the company. The attachment is designed to handle all types of soldering and brazing operations, Trindl said.

The Therm-O-Tron is a portable unit weighing about 75 lbs. that can be plugged in to any 110/220 volt, 50/60 cycle outlet for operation. It measures 10½ in. high, 15½ in. wide, and 10½ in. deep.

It is equipped with 40 ft. of heavy-duty secondary output cable, two pipe clamps, and 10 ft. of power cord with plug atttached. There are two heat control taps ranging from 200 to 500 amps. Each tap automatically regulates the proper amount of current and voltage required for various sizes and lengths of pipe.

The instrument is said to handle up to 30 ft. of 1½ in. pipe and longer lengths of smaller pipe. To operate, the Therm-O-Tron is plugged in, the pipe clamps are attached, and the current turned on. In a matter of minutes, according to the manufacturer, the frozen pipe will become sufficiently warm to thaw out.

Trindl says the pipe thawer is guaranteed for one year and with reasonable care should last a lifetime as there are no moving parts.

Wire Imbedded In Candle Aids In Leak Detecting

——KEY NO. A-143——

MILWAUKEE — "Halie," a small candle ⅜ in. in diameter and 3½ in. long that can be used to detect leaks of "Freon" and other halocarbon refrigerants has been introduced here by the Meed Engineering Corp.

"Halie's" composition and special construction include a small copper wire spirally embedded in the body of the candle. The flame of the candle heats the copper wire red-hot, so "Halie" works on the same principle as the halide torch that burns liquid or gaseous fuel.

The flame of "Halie" is brought near the joint to be tested and if there is a leak, the refrigerant causes the white flame of the candle to turn to a brilliant blue.

The manufacturer claims that it is extremely sensitive and will discover very minute leaks quite readily.

A small funnel that fits on the top of the candle can be used to catch the refrigerant gas and intensifies its effect on the flame, thus adding to the candle's sensitivity.

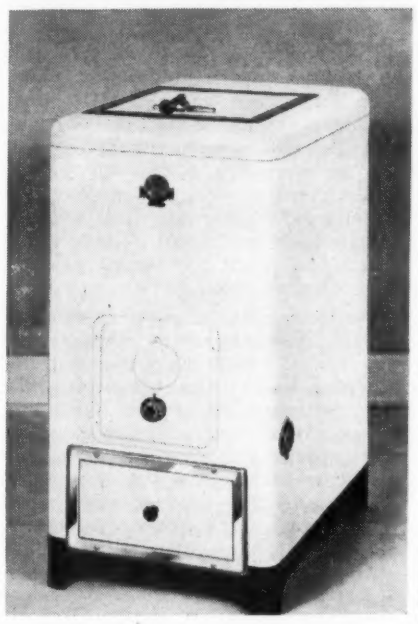
In addition to "Halie's" high degree of sensitivity, the manufacturer points out that it can be easily carried, quickly lighted without generating, requires no bulky tanks or tubes, and is easy and economical to use.

Halide candles of this type have been used in France for a couple of years under French patents, and application has been made to the United States Patent Office.

"Halies" are made in the United States under exclusive license from the French manufacturer for distribution in the United States, its possessions, and Canada.

"Halies" are being distributed through refrigeration supply wholesalers.

Calcinator Shows 1951 Models of Waste Disposers



——KEY NO. A-144——

BAY CITY, Mich. — New, 1951 model Calcinators for disposal of household combustible wastes have been announced by the Calcinator division, Valley Welding & Boiler Co. here.

The new units are offered in deluxe white and standard grey models for use with electric, gas, or bottled gas services. All new models hold more—1⅝ bushels. Over-all dimensions are still only 36 in. high by 18 in. wide, by 24 in. deep.

Other new features include a sturdier, self-leveling, four-point suspension base, a built-in automatic draft and stack temperature control, and a new top loading door.

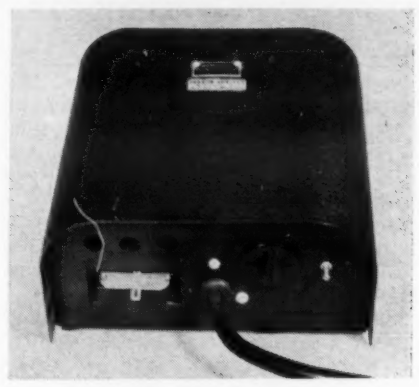
New gas models have a selective "Hi-Low" burner control dial to give the consumer the advantages of a higher calcination rate when needed to take care of added demand caused by company or other situations where disposal becomes a problem, the company said.

The Calcinator disposes of all household combustible wastes and refuse, the company explained. This includes food scraps, bones, garbage, paper, magazines, rags, vacuum cleaner bag dirt, and the like.

Refuse and garbage next to the heat source is first dried, raised in temperature to ignition point, and reduced through burning. Materials next to the burner in turn heat, dry, and reduce the rest of the load.

So the garbage and refuse itself furnishes up to 98% of the heat required for disposal, the manufacturer declared. This makes calcination a thoroughly effective and economical method of disposal, he asserted.

Abbeon Plug-In Controller Operates Humidifiers



——KEY NO. A-145——

NEW YORK CITY—A new plug-in humidity controller, an automatic control to operate electrically powered humidifiers and dehumidifiers, has been announced by Abbeon Supply Co. here.

With this new plug-in humidity controller, the company claims, the necessary electrical work has been done at the factory and only three steps are needed to install it.

These steps are:

1. Plug the humidifier or dehumidifier into the control.

2. Plug the control into a wall outlet.

3. Set the dial at the percentage of relative humidity that is desired.

The controller can handle a load of 15 amps at 115 volts or a continuous load amounting to 1,700 watts.

Minneapolis-Honeywell humidistats of the standard human hair type are being used currently, the manufacturer said. The humidity scale is graduated from 20% to 100% relative humidity.

Standard color of the instrument is a dark green baked crackled finish. Other colors can be supplied in quantity, the manufacturer further added.

The instrument weighs 3¼ lbs. and measures 7¼ in. wide, 3¾ in. deep, and 6¾ in. high. Shipping weight is 4 lbs. 5 oz.

According to the manufacturer, purchasers should specify whether the instrument is to be used for controlling either humidifiers or dehumidifiers.

The internal wiring construction varies depending on whether the humidistat is acting on rising or lowering humidity.

The controller comes equipped for wall mounting and carries a price of $45.

2 Bins Make Small Parts Easier To See, Reach

——KEY NO. A-146——

DETROIT—Two new bins designed to speed service operations, facilitate ordering, and increase sales by making small parts and fixtures easier to reach and easier to see have been announced by Service Parts Systems, here.

The bins were developed for stock rooms or sales departments to provide a compact, accessible unit for frequently used springs, nuts, bolts, washers, clips, and other types of small parts.

The 700 bin is a wall unit with

100 separate compartments. All are tilted forward to meet the eye and are built on the "cash drawer" principle with rounded bottoms to make parts easier to pick out. Each compartment carries a bin tag holder for labels of part number, price, and specification.

All the compartments of both units lift from the rack for stock rotation and cleaning. Shelves at the top and bottom of the wall unit provide extra space for storage of packaged stocks.

The wall unit is 56 in. high, 44 in. wide, and 12 in. thick at the base.

The 320 bin is an island unit with compartments on both sides of the stand. It provides 320 separate compartments in a unit 65 in. high, 44 in. wide, and 20 in. thick at the base.

Both bins are built of sturdy 18 and 20-gauge steel and are painted in buff and maroon.

PLENTY FOR FREE

For "easy-to-get" product information . . . use coupon on "What's New" page

OPERATING COSTS

Electric & Absorption Type Air Conditioning Systems Analyzed

By C. M. Broad, Assistant to General Sales Manager, Mississippi Power & Light Co.

Published in adjoining columns is a slightly condensed version of a talk by C. M. Broad, assistant to the general sales manager, Mississippi Power & Light Co., Jackson, Miss., on "Analysis of Operating Costs of Electric and Absorption Air Conditioning Systems."

It was delivered before a session of the Commercial Committee during the General Sales Conference held recently in Atlanta, Ga., under sponsorship of the Southeastern Electric Exchange.

Prior to the war some experimental work was carried on in the gas air conditioning field, mainly by Surface Combustion Corp., Bryant, Williams, and Servel. During the war Servel carried on experimental work and after the war was ready to introduce its new 3 and 5-ton units to the trade.

There are now in operation approximately 7,000 such units in residences and small commercial businesses. The Servel organization recently redesigned its 5-ton unit where it can be installed separately from the boiler and can be grouped in units of four. Early in 1951 they plan to start producing a new 20-ton unit.

Williams plans to market a 10-ton unit, and Kathebar is now active in the field. Kathebar installed the water chilling unit in the Shamrock hotel in Houston.

Also since the war the Carrier Corp. has included in its line an absorptive type system. These systems at the present time are available in units from 115 to 300-ton capacity.

Some 90 installations have been made, comprising 160,000 tons, most of which are installed in the Southwest. Energy to these units can be supplied from steam purchased wholesale in metropolitan areas from steam produced in the building. In many instances the present heating boilers are utilized.

The gas activated absorption type air conditioning system is growing in popularity for some types of installations for the following reasons:

1. It is vibration-free since there are no moving parts and little noise, which is a desirable feature in some installations. As there are no moving parts to the unit, repairs and operation are somewhat cheaper, therefore an anticipated longer life than with conventional compressor type equipment can be expected.

2. Due to the fact that it is somewhat lighter in weight and vibration-free, there is a wider choice of location in the building.

3. This type of equipment can normally be installed on roofs of existing buildings, thereby saving valuable floor space. In the south in some areas where basements cannot be constructed this is a very valuable asset.

4. Where gas or steam rates are low.

Let's look at some operating costs of small units. The comparison of seasonal average operating costs of the two different type units is shown on this table (see Table 1).

This has been broken down to a one-ton basis for the small units only—that is units up to but not over 20 tons. These figures are average and are not true for all cases.

We have tested some installations and found that the demands run as high as 1.4 kw per ton and as low as .9 per ton. What I am showing here is an average we have taken for a number of units that are installed in our territory.

Table I—Comparison of Electric Compressor and Gas Absorption Air Conditioning Systems 3-20-Ton Units

	Compressor	Gas Absorption
Electric demand per ton	1.1+	0.4+
Hours operation	1,000	1,200
Kwh. per season	1,100	480
Gas (m.c.f.) season	..	24
Cost per kwh.	3.3¢	3.5¢
Cost per m.c.f.	..	50¢
Electric billing	$36.00	$17.00
Gas billing	..	$12.00
Total billing	$36.00	$29.00
Electric Rev. kw/yr.	$33.00	$43.00

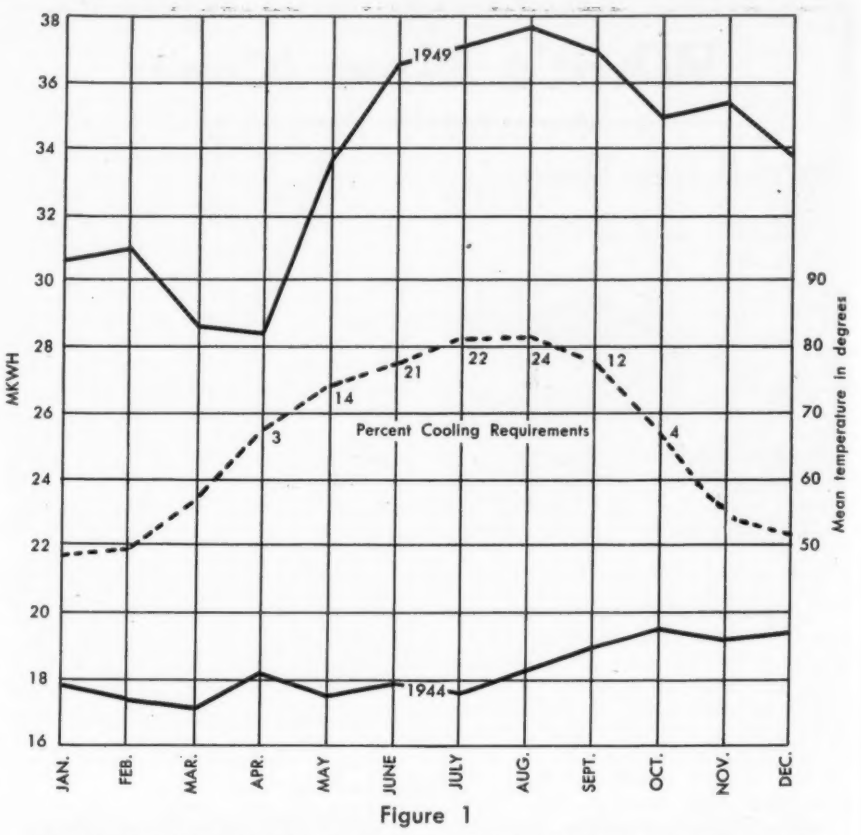


Figure 1

BESIDES SHIFT IN PEAK load from October (1944) to August (1949) utility's chart shows how peak has become more or less even for several months instead of for only one month as in the past.

Let's look first at the more familiar type of unit that we know—that is the compressor type. This is based on 1-ton.

We find 1.1 kw demand per ton with approximately 1,000 operating hours for the entire season. The kwh. used during the season is 1,100. Taking this at 3.3 cents per kwh, we find that the electric operating cost for the season is $36, therefore the total operating cost is $36. We have disregarded water in this analysis since water is a small item in either case. The electric revenue per kw. year we find is $33.

On the gas absorption system the electric demands vary from .3 to .4 per ton. This is due to fans and pumping as the absorption type unit requires more water be circulated through the cooling tower than the compressor type. The unit will operate more hours than the compressor unit due to the fact that they are of the modulating type and in some instances do not have as quick a pick-up as the other type.

This all adds up to the absorption type unit having a higher load factor. The load factors vary on the compressor type from 14% to as high as 17% and on the absorption type from 19% to 22%. This unit will use only 480 kwh. per ton and 24 m.c.f. per ton per season.

Because of less usage the kwh. cost average is 3.5. We have priced the gas at 50 cents which is a good average rate in our territory for small installations. Net revenue to the electric company is $17 and revenue to the gas company is $12, making a total net revenue to the gas and electric company of $29.

These figures do not hold true for the larger type units as you get into entirely different gas and electric rates. The larger Carrier absorption type units have a demand of approximately ½ kw. per ton against 1¼ per ton for the compressor type, and as they are always installed in larger buildings where the electric rate is much lower you have com-

(Concluded on next page)

Operating Economies Of 2 Types of Units Vary with Conditions

(Concluded from preceding page)

etely different operating costs.

We recently installed in our general office building in Jackson a 200-n Carrier absorption type system. this building we have air condi-oned 22,700 sq. ft. This includes the rst four floors, the first floor con-sting of some offices, drugstore, and rber shop.

It was deemed advisable to in-all equipment on the roof since it ould be entirely too expensive and pace was at a premium in the asement. All of the pumps, cooling owers, and the unit were housed by increasing the size of the present penthouse.

Steam is supplied at 11 lbs. pres-ure from the present boilers used for heating. No change was neces-sary in this boiler plant. The unit uses approximately 20 lbs. of steam per ton.

On tests recently conducted we are using an average of 27 m.c.f. for a 10-12 hour day. So far this season we have used 3,600 m.c.f., and we es-timate that for the entire season we will use 4,200 m.c.f. At 25 cents per m.c.f., which is our standard rate for loads of this size, this will cost us $1,050 for gas.

The electric energy used in the operation of the fans and other auxiliaries could not be obtained due to the arrangement of the wiring, but the demand is approximately 100 kw. Taking the electrical energy at 2 cents per kwh., it will cost us $3,200 to operate the auxiliaries, or a total cost of $4,250.

A 200-ton unit of the conventional compressor type located in our pro-perties is averaging $5,800 per year. Their electric rate is also 2 cents per kwh. Therefore, it appears that the absorption type unit has some advantage from an operating stand-point, but we have not taken into consideration fixed charges and other operating costs. We realize that these costs can vary due to the installation cost and particularly the gas and electric rates.

Figure I shows that our peak load moved from October to August. Our long summer valley in 1944 before the October peak has been filled here in 1949 by air conditioning which causes the new August peak. This additional load has been most advantageous but without long-range planning might become hazardous.

Now our valley is only in March and April.

To further prove my point that the reason this peak has shifted back to August and looks like a set of stair-steps or a step-ladder, the dotted line shows the average tem-peratures. From April to May the demand increased from 28,000 to nearly 34,000, the temperature in-creased approximately from 65 to 75, and the temperature line follows very closely the peak demands up to August and starts tailing off after August. Of course, our peaks do not tail off in October with the tempera-ture decline due to the fact that this is the time the oil mills and gins peak.

To further point out that the peaks created by air conditioning are still of benefit to my company, notice that the peak load is more or less even for several months instead of one month as in the past.

Looking at it from strictly a utility standpoint, fixed charges per kw. year are approximately $23.50; therefore, on small units where you are receiving $33 per kw. year for the compressor type you have $9.50 left after fixed charges. On the ab-sorption type you have $19.50 re-maining after fixed charges. On the larger units you have $3.50 remain-ing after fixed charges for the com-pressor type and $8.50 remaining for the absorption type.

We are a combination company and naturally have a different cus-tomer relations situation than a straight electric company. We are morally obligated to recommend to our customers the best type for their needs when they ask us.

To do this, we must take into con-sideration gas and electric rates ap-plicable to the installation, space availability, cost of equipment, and cost of installation and other operat-ing and maintenance factors.

Therefore, by careful analysis we can best serve our customers, our own companies, and all our cooperat-ing dealers.

Q. Would Deposit In Tubes of Chiller Cut Efficiency of Air Conditioning?

Burlington, N. C.

Editor:

The plant in which I work has two air conditioning central station units with refrigeration to chill the water in the air washers. The compressors are 50-ton and 75-ton Chrysler Air-temp radials with tube and shell con-densers and tube and shell evapora-tors. The tubes are of the "U" shape design.

These units were designed to main-tain room conditions of 82° dry bulb, 71.5° wet bulb, and 58% r.h. These units were put into operation in the summer of 1947, and good results were obtained and conditions were held constant with little variation.

Our problem is we were unable to get the desired conditions last summer as the two previous summers. The temperature and pres-sure readings are as follows: suc-tion pressure 34 p.s.i.g.; temperature of suction line 50°, discharge pres-sure 140 p.s.i.g., liquid line tempera-ture 103°, condensing water inlet 84°, outlet 92°, chilled water inlet 64°, chilled water outlet 68°, tem-perature leaving air 69°, room dry bulb 87°, wet bulb 74°, r.h. 53%, outside dry bulb 87°, wet bulb 76°, refrigerant "Freon-12."

We have a bad water condition. The water is treated for control of algae slime and scale by a nationally known water consultant company.

We remove the heat exchanger coils, used to heat the water in the winter months, each fall and clean them. We find a deposit has built up on the coils and tends to cut the heat transfer somewhat.

Do you think that the deposit has built up on the evaporator coils enough to cause the tubes to be in-sulated and thus cut down the heat transfer enough to cause this trouble? If so, what can be done? It would involve a lot of work to remove the coils for cleaning. Could some chemical be used to circulate through the tubes and remove the deposit? If so, what chemicals would you advise?

W. T. GARNER

A. Scale May Be Cutting Transfer Rate; Vinegar or Sulphuric Acid Might Help

Dear Mr. Garner:

Your letter regarding trouble that you are having on an air condition-ing installation on which you work is very interesting, although I must confess that the description of the system as related in the first para-graph is not clear to me.

From the description I gather that there are two distinct systems, one with a 50-hp. compressor and the other with a 75-hp. compressor; that each system has its own air washer and that the systems are identical in all respects except size; also, that each compressor has its own shell and tube condenser and tube and shell chilled water evaporator or cooler in bottom of air washer; that there is a chilled water pump which draws the chilled water from the cooler and supplies same to, but here is where I am stopped. Is this chilled water supplied to open sprays or to water cooling coils above the cooler in the air washer? Or is this a "Baudelot cooler" arrangement?

Not having a clear picture of these systems, it is impossible to diagnose the trouble properly. Nevertheless, there are certain basic fundamentals these systems must adhere to, no matter what the setup. These funda-mentals will be brought out in dis-cussing your problem.

The original design conditions are:

Outside		Inside
95°	Dry Bulb	82°
78°	Wet Bulb	71.5°
71°	Dewpoint	61.5°
46%	Relative Humidity	58%

According to your letter, the above systems were installed in 1947 and that you obtained good results and conditions were held constant with little variations. Well, in such cases if it operated well at the beginning, it should work well again upon giving it some treatment.

The operation at present is as follows:

Outside		Inside
87°	Dry Bulb	87°
76°	Wet Bulb	74°
71.5°	Dewpoint	68.5°
60%	Relative Humidity	53%

From your letter, the suction pres-sure is 34 p.s.i.g. but the suction temperature should be 32° instead of 50° to conform. Therefore, this shows that the evaporative coil has too great a superheat, which in this case means that the liquid refrigerant to the evaporator is not 100% liquid. The cause for this is that the re-frigerant gas in the condenser is not completely condensed.

The condensing water entering at 84° is coming out at 92°. If there is a cooling tower on this system, it is okay with about 4 gals. of water per minute per ton of refrigeration through the condenser. If city water is used then it will require about 2 gals. of water per minute for each ton of refrigeration through the con-denser, and the water leaving the condenser should be about 105°.

If city water is being used then the reason for not coming out at 105° is generally due to a scale deposit inside the condenser tubes, thereby cutting down the transfer rate between water and the refrig-erant. This will also result in the incomplete condensing of the re-frigerant gas.

In this case the chilled water in is 64° and the chilled water out is 68°. This is entirely out of line. The chilled water in should be in your case about 48° and no higher and should come out at about 58° based on a 10° rise. This will mean about 120 gals. per minute on the smaller system and 180 gals. per minute for the other system.

Now if a cooling tower is used then the trouble is in the evaporator. But if city water is used then the trouble may be in the con-denser or in both the evaporator and the condenser. And, of course, the trouble is due to the incomplete con-densing of the refrigerant gas in the condenser. This means less refrigera-tion work in the water chiller or evaporator.

The temperature of the air leav-ing the air washer is 69°. This is too high. As far as heat transfer is concerned between chilled water and the air, it is about at its limit in performance with a 5° difference in temperature. This air leaving tem-perature should be about 62° basing it on about 20,000 c.f.m. for the smaller system and 30,000 c.f.m. for the other.

The system does show that a deposit has been built up on the evaporator also on the condenser coils, although I am not positive due to lack of certain information. Both points should be checked.

The method which I employ and have had good results with is the following:

1. Soak the evaporator or con-denser in a bath of vinegar for about 24 hours. This usually loosens up the deposit which can be cleaned out afterwards. If the conditions are not cleared up in the first trial, do it a second time which should take care of it.

2. Another method is to use a weak solution of sulphuric acid as a wash and the application applied until satisfactorily cleaned. Caution must be taken with this method so that tubes are not pitted.

As a general practice it is poor application to use "U" tube coils of any kind in such a system where there exist bad water conditions. In such cases cleanable coils are best.

JAMES J. LASALVIA

Lucey, Rooks Elected Trane Vice President

LA CROSSE, Wis.—Election of R. E. Lucey and H. C. Rooks, as vice presidents of The Trane Co. was an-nounced today by D. C. Minard, exe-cutive vice president.

E. A. Cline was named sales man-ager. He will report to Thomas Hancock, vice president in charge of sales for the manufacturer of air con-ditioning, heating, and ventilating equipment. R. E. Haskins succeeds Cline as manager of convector-radiator sales.

Lucey continues as manager of product development and chairman of the development committee that has co-ordinated Trane's postwar ex-pansion in air conditioning units and systems, refrigeration, fans, and in-dustrial heating.

Rooks is a specialist in heat transfer work. He spearheaded Trane's World War II development of lightweight brazed aluminum heat transfer surfaces that materially in-creased the range and armament carrying capacity of military planes.

Roses Bloom 'as Wanted' with Walk-In

Refrigerator Holding 2 Carloads of Buds Solves Operational Problems for Florist

HUNTSVILLE, Ala. — Installation of a walk-in refrigerator large enough to accommodate two carloads of rose clippings, has solved serious operating problems for the Huntsville Wholesale Florist Co., nursery-stock florist here.

Prior to installation of the big walk-in, it was necessary for the wholesale florist to "drop everything" for processing and distribution of roses, when the latter approached the blooming stage in the Texas growing areas.

Because of the uncertainty of the "blooming date" and the need for handling thousands of roses swiftly, it often required many extra personnel and the ignoring of other operations at the plant to handle the rose stock profitably.

LEVELS OUT PROCESSING

In an effort to level out the peaks and valleys in rose processing, the Huntsville Wholesale Florist management called into conference Gordon L. McWilliams, head of Refrigeration Appliances, Inc., specialty refrigeration firm of nearby Atlanta.

After much experimentation, McWilliams determined that rose buds, even though only a few days away from the blooming stage, could be kept dormant by refrigerating them to a point just above freezing, and maintaining at the same time a high degree of relative humidity, to prevent withering or drying out of the bud or stems.

The result was construction of the walk-in cooler, which is equipped with two 12-hp. Frick compressor units. The units are built into separate systems to guarantee at least 12 tons of refrigerative capacity in case one or the other should go out of service. Both supply refrigerated water to two blower units of the floor type, which provide 18,000 c.f.m. each of cooled air.

OPEN TYPE SHELVING USED

The roses are laid out on open-type rack shelving to provide adequate air circulation. Two entrances are provided, one a dock-side type, which permits roses to be delivered directly from refrigerated freight cars into the holding area.

An evaporative condenser permits more economical operation of the two Frick units. Thermostats, mounted at intervals around the wall, guard closely the exact 33° temperature which is always maintained. Eighty per cent relative humidity is provided by two humidifying units, built into the sub-floor plenum chambers, from which the chilled air is distributed.

Through use of this $9,000 installation, Huntsville Wholesale Florists have found it possible to begin receiving Texas roses a full month ahead of the former season. Upon being rushed into the cooler box, the roses can be kept in a dormant condition to permit processing "at will" and extending a full month over the ordinary season.

As a result, none of the roses bloom until wanted, an adequate supply can be maintained at all times to meet florist's demands without "flooding the market" suddenly, and profits on rose sales have been maintained at an even peak year-round.

The installation will pay for itself within two years, according to McWilliams, who personally engineered and supervised the entire installation.

Cincinnati Builder Will Air Condition Subdivision

CINCINNATI — A leading Cincinnati home builder has purchased 175 Servel year-round air conditioners to provide a "completely air conditioned" subdivision.

E. W. Bettinger, president of Mutual Mfg. and Supply Co., here, distributor for Servel, Inc., disclosed that his firm received this order, valued at nearly $750,000, from Robert H. Wachendorf, head of one of the Queen City's largest home building firms.

Louis Ruthenburg, chairman of the board of Servel, Inc., the nation's largest manufacturer of gas equipment and appliances, termed it "the largest order of its kind in the history of the world, as far as we know."

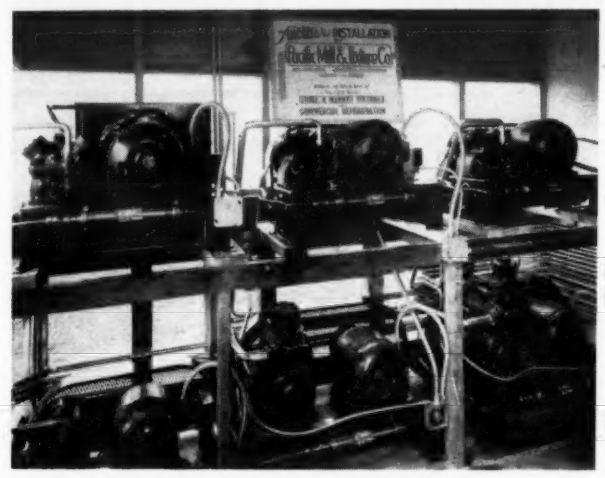
The Servel units will be installed in a new and exclusive suburb in Cincinnati—Meadow Ridge—where homes will range in price from $30,000 to $100,000.

"There won't be a single home in Meadow Ridge that doesn't have the 'All Year' unit," Wachendorf said.

Installations will require 3-ton or 5-ton Servel units.

Big Store Layout—Compact Unit Layout

READY TO SERVE: Cashiers in the new P-X market in Gregory Village, Concord, Calif.—a suburb of Oakland—get ready for customers. The market is equipped with 190 ft. of open type display cases. Note wall signs emphasizing "Refrigerated Vegetables" and "Frozen Foods," and special reach-in at back of store.



READY TO WORK: Seven General Electric condensing units are lined up on this double tier rack to power the refrigeration used in the market.

* * *

P-X Market Has 190 Ft. Of Open Display Cases

CONCORD, Calif.—The P-X Markets, San Francisco Bay area chain, recently opened its fourth supermarket located in the Gregory Village, here.

The new unit features 190 ft. of open display cases for meat, fish, dairy products, and fresh produce. In addition the store has 12 ft. of open display cases devoted to liquor sales and a large reach-in, walk-in combination liquor box. For bulk storage there is a 30 by 20 ft. walk-in unit.

All this refrigeration equipment is powered by seven General Electric condensing units.

The custom built fixtures and self-service Weber refrigerated display cases were furnished and installed by Pacific Mill & Fixture Co. of Oakland. The G-E refrigeration equipment was supplied to Pacific Mill by General Air Conditioning and Heating Co., also of Oakland.

So. Memphis Lumber Co. Takes on Crosley Line

MEMPHIS — Crosley refrigerators and other appliances will be carried by the South Memphis Lumber Co., formerly J. W. Tapp Lumber Co. on South Cooper St., which held grand opening at 2231 South Bellevue St., recently. J. W. Tapp is the company owner.

'New World Living'

Kitchen Designed as 'Indoor-Outdoor' Living Center

Refrigerating, Cooking, Laundry Centers Are Included In Model at Furniture Mart; New Cabinet, Range Design

CHICAGO — General Electric Co. unveiled at the American Furniture Mart here a kitchen that boasted a lily pond, an aquarium, a soda fountain—as well as some appliances to cook on.

Called the "New World Kitchen," the spectacular room was designed by the General Electric Home Bureau to show how a kitchen can be made the comfortable "indoor-outdoor" living center for an entire family.

A large room for cooking, laundering, dining, living, playing, and even gardening, the kitchen incorporates a new range and new cabinets that are not yet in production as well as all the other 1951 automatic appliances now on the assembly line.

Because the outside walls are made almost entirely of clear plate glass, the room gives the feeling that it is part of the outdoors. This is heightened by the inclusion of a lighted pool and a huge stone fireplace with outdoor cooking equipment in the living end of the kitchen.

THREE PRINCIPAL AREAS FEATURED IN LAYOUT

Although it is unbroken by partitions, the irregularly shaped room, measuring roughly 23 by 50 ft., is divided into three principal areas.

At one end is the 13-by-15-ft. kitchen-laundry. This is arranged so that the homemaker can move easily, without wasting steps, from one job to another and to the rest of the room.

Along two walls is the L-shaped food preparation and storage center. This incorporates a 10-cu. ft. combination refrigerator-food freezer, a new push-button range, base cabinets, and "radically new" wall cabinets.

In an alcove off this area is an 8-cu. ft. chest-type food freezer and a specially built cabinet for freezing supplies.

U-SHAPED 'ISLAND' BAR ALSO LAUNDRY CENTER

On the other side of the kitchen in a unique U-shaped "island" bar is the washing center. Here are installed the company's new front-opening, top-loading, under-counter dishwasher, a stainless steel sink with garbage disposer, a low-price automatic washer, drier, and toe-controlled automatic ironer. Also included is a complete soda fountain.

When not in use, the bar presents a smooth work surface finished in mahogany plastic. Doors in the side of the bar fold back to permit access to the appliances.

The center section of the room is the dining area, built around a special table that can be used for dining, for children's games, or for card playing. Simply by turning a crank, it is possible to change the surface of the table to fit the immediate needs of the family.

When used for dining, the table is surfaced in tan Texolite; for games, it is surfaced in wood marked off for chess or backgammon; for card playing, it is surfaced in felt.

The table is flanked by benches and chairs. In the wall behind it is a huge vertical aquarium for tropical fish. Nearby is a built-in planning desk and bookcase.

The fireplace, which has a raised hearth and is equipped with a rotisserie, faces diagonally into both the dining and living areas, and is the focal point of this part of the room.

The living area is down two steps from the rest of the room and is surrounded on three sides by glass walls. The area is carpeted. The pool extends outside the room onto the paved terrace.

A special feature of the room is the lighting. The entire ceiling is crossed by redwood beams. Over these are laid a translucent plastic material behind which glow approximately 275 lineal feet of fluorescent lamps.

RANGE WITH EYE LEVEL CONTROLS TAKES ITS PLACE

The new deluxe electric range has an extra-high back that brings the push-button controls up to eye level. Designed for use primarily with the new kitchen wall cabinets as an integrated part of the New World Kitchen, the range can also be used as a free-standing unit or can be fitted under any conventional cabinets now on the market.

According to J. R. Poteat, manager of the range and water heater divisions, the location of the push-button controls 16 in. above the cooking surface not only facilitates operation of the range but also provides a larger, smooth back-splash and permits complete illumination of the cooking surface either by the full-length fluorescent lamps in the control panel or by lights underneath the cabinets overhead.

Called the "Imperial," the new range has two ovens and broilers, two giant surface units, and two standard surface units—one of them an extra-high-speed element for fast cooking starts. The push-button controls are lighted to show which unit is on and at what speed. Two storage drawers are roller-bearing mounted.

Poteat said production of the Imperial range will start in the next several months, but that only a limited number will be built this year.

NEW KITCHEN CABINETS 'LIFT UP' FROM BOTTOM

The new deluxe wall cabinets have top shelves that can be "easily reached by the average homemaker" and curved lines to harmonize with the most modern kitchen.

Marking "a radical departure" from the conventional type of kitchen cabinet, the wall cabinets in the new line have counterbalanced doors which lift up from the bottom in finger-tip operation. When open, the doors are completely out of the homemaker's way.

Accompanying "underwall" cabinets which fit directly under the larger wall cabinets also feature doors, which open down from the top.

By taking 6 in. from the height of the conventional wall cabinet and using the underwall cabinet, General Electric designers have provided better accessibility to all parts of the cabinet storage area, according to C. J. Enderle, manager of the electric sink and cabinet division.

Wall cabinets have wire shelves for added cleanliness and improved appearance, Enderle said, and the underwall cabinet shelves can be removed so that small appliances, such as toasters and mixers, can be stored in them.

Stylewise, the new cabinets, with their rounded lines, avoid completely the sharp-edged, boxlike effect of conventional cabinets.

Also included in the new line are corner cabinets with open shelves which lend themselves easily to decorative effects and provide a convenient place for such kitchen aids as cookbooks or a small radio. There is also an open shelf designed to fit over the refrigerator.

The company is tooling up for production of the deluxe cabinets at its Scranton, Pa., plant, Enderle said, and a limited number of the new line are expected to be available in 1951.

The wall cabinets and underwall cabinets will be used in conjunction with General Electric's present line of base cabinets. The company will continue its complete line of standard wall cabinets and accessories.

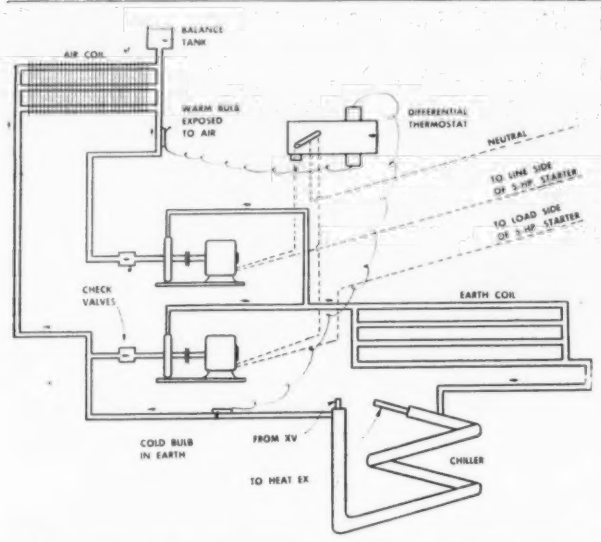
Some New Ideas in Kitchen Planning

This view looks into the General Electric "New World" kitchen on display at The American Furniture Mart in Chicago from the "living room" area. Housewife stands in dining room area, where there is a built-in table. U-shaped bar behind housewife is general "dispensing" area, with cabinets in base of bar containing automatic laundry equipment. Kitchen preparation center, with refrigerator, range, freezer, and cabinets, is against the walls. Fireplace with raised hearth and rotisserie, faces diagonally into both the dining and living room areas.

Something of a radical departure are the new wall cabinets, which have counterbalanced doors which lift-up from the bottom in finger-tip operation, and are completely out of the way when opened. The top shelves are easily reached by the average homemaker. Curved lines harmonize with the modern kitchen design.

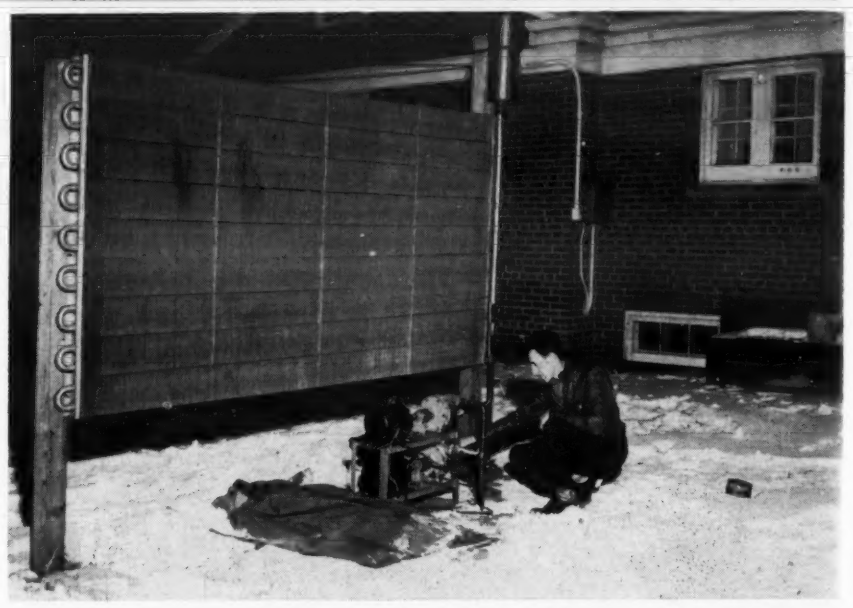
MISSING SOMETHING?

More and better useful information is yours for the asking. See "What's New" page.



LAYOUT shows chief components of unusual "earth-recharging" system combining air and ground coils as the heat source for the year-round heat pump air conditioning system serving the new home of Art Gretzner, Chicago refrigeration man.

EARTH COIL consisting of ¾-in. o.d. soft copper covers less than 1,500-sq. ft. area, which is unusually small for a 5-hp. heat pump. The bulldozer used to excavate ran into blue clay hardpan at a depth of 4 ft., so it was considered impractical to go deeper; thus the coils aren't at the depth generally preferred.



AIR COIL located in back yard has dual function of supplying heat to condensing unit and storing excess heat in the earth through the ground coil.

* * *

Heat Pump Tames Chicago Winds

Unique Combination of Air, Ground Coils 'Recharges' Earth for Home

By C. Dale Mericle

CHICAGO — Featuring a unique combination of air and ground coils as the heat source, a residential heat pump system has been installed in his home on South Wabash Ave. here by Art Gretzner, refrigeration mechanic. The system, of course, provides year-round air conditioning.

It has been in operation for nearly a year now, having been started up in February of 1950, and thus far, Gretzner reports, its performance has been satisfactory. Complete records are being kept of operating conditions, but these were not started until October of 1950, so a complete analysis of a full winter's performance will not be available for some time yet, he indicates.

Essentially, two sets of equipment are involved. The indoor refrigeration and air-handling systems are tailor-made, but may be considered equivalent to what a self-contained factory-made heat pump of the water-to-air type would be. Second set of equipment is the combination air and ground coil for supplying heat.

The ground coil consists of eight 97-ft. lengths of ¾-in. o.d. dead soft copper tube with a .035 in. wall which are manifolded into 1⅛-in. headers and buried in the back yard. Each header is 14 ft. long so the grid tubing is located on 2-ft. centers.

Depth of the ground coil ranges from 4 ft. 3 in. to 4 ft. 6 in., which is much less than is usually recommended. The reason, Gretzner explains, was this:

"We decided to dig out the earth for the ground coils with a bulldozer, just as a basement is usually dug. The weather was dry at the time and the bulldozer had no trouble pushing out the lake sand which is our topsoil. Then at the 4-ft. depth we ran into blue clay hardpan. The bulldozer couldn't even get a bite and it was almost impossible to make any impression with a pickax. So we decided to lay the coils on the hardpan anyway. We don't claim that this is the proper depth, but so far the system has worked beyond our expectations."

All the underground joints in this installation were silver-soldered and tested under both pressure and vacuum. And as a further insurance against any electrostatic action at the soldered joints, they were wrapped with rags which had been soaked in asphalt.

No refrigerant is circulated through the ground coils, a 50% solution of "filling station" methyl alcohol being used instead. The system is charged with 37 gals. of the solution.

"Perhaps gylcol would be better for the solution but it's a lot more expensive," Gretzner explains.

INDIRECT SYSTEM

Although a similar heat pump job previously installed in the Chicago area circulated "Freon-12" through the combination ground and air coil, it was decided to use the indirect method for Gretzner's systems although at a sacrifice of efficiency.

Total refrigerant charge is 28 lbs. of "Freon-12" compared to the 125 lbs. that would probably be needed if the solution were not used. Also, of course, there's no need to worry about refrigerant leaks in the ground coil.

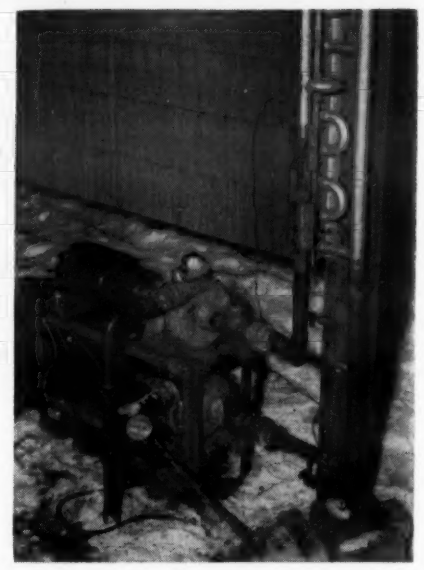
Disadvantage of using a solution, however, is the loss of approximately 20% in the over-all efficiency of the system. Due to the necessity of having an additional heat exchange process between the refrigerant and the solution, the system operates at a lower suction pressure, which accounts for about 10% less efficiency. Another 10% is lost because a ½-hp. pump is required to circulate the solution. In all, then, current cost is estimated to run approximately 20% more than if the refrigerant were evaporated directly in the earth coils.

In selecting a chiller to provide heat transfer between refrigerant and alcohol solution, it was decided to use an old-fashioned shell-and-tube design, Gretzner explains.

This was fabricated by Rempe and consists of 1½-in. seamless steel tubing inside a standard 2-in. iron pipe. There's a 110-ft. length of each, the chiller being coiled into a diameter of 4 ft. standing 26 in. high. Refrigerant flows in the inner tube being fed from the bottom upward while alcohol is fed into the top and flows through the annular space. Gretzner wishes it were 30% to 50% larger to decrease the temperature difference between the solution and the refrigerant.

CHILLER was specially fabricated in double-tube design and buried in ground near air coil. It transfers heat from solution in ground and air coil circuit to refrigerant.

CHECKING temperature of earth surrounding ground coil is done daily by Gretzner to gather performance data.



PUMPS to circulate alcohol-water solution through earth and air coils are controlled by a differential thermostat with two bulbs.

AVOID CONDENSATION

Because a chiller is cold there is often a condensation problem which is usually overcome by wrapping it with insulation. For the Gretzner installation, however, it was simply buried in the ground. This avoids any sweating problem and probably adds slightly to the heat source of the ground.

While this location of the chiller does deviate from the principle of having all refrigerant joints above ground and readily accessible, actually there are only two such connections in the chiller and these are but 3 in. below the surface. Also, the refrigerant line is the inner tube and is thus protected from corrosion. The outer pipe is heavily coated with asphalt paint.

It might be noted here that the earth coil system is a grid covering less than 1,500 sq. ft. of area, which most authorities might think is very small for the 5-hp. condensing unit employed in this heat pump installation.

Actually, though, the earth is not the sole heat source and can be more properly regarded as a large heat storage reservoir. In itself, Gretzner believes, the earth coil system would not prove adequate.

PRIMARY HEAT SOURCE

The primary source of heat for the heat pump is a large finned air coil exposed to the atmosphere conditions. Also constructed by Rempe, this coil measures 8½ ft. long by 4½ ft. high and consists of aluminum fins spaced three to an inch in a single row of 1-in. o.d. copper tubes.

Standing about 2 ft. off the ground, the air coil is located in the back yard. Incidentally, it could very well be located against a south wall or on a sloping south roof. Perhaps in a different shape, Gretzner says, it could be used as a fence or grape arbor. Its size in this case is purely arbitrary, but it never could be too large, according to Gretzner.

Beneath the air coil (although they could be located inside the house if desired) are two ½-hp. centrifugal pumps. The piping is so arranged that one pump circulates the alcohol solution through the ground coil, thence to the chiller and back to the ground coil.

The second pump is so piped that when it operates it circulates the solution from the ground coil through the chiller and thence through the atmospheric finned coil and back through the ground coil.

Operation of these two pumps is controlled by a differential thermostat having two feeler bulbs. One bulb is clamped to the main solution piping where it leaves the chiller while the other bulb is strapped on the outlet of the atmospheric coil.

The control is so set that when the solution coming from the air coil is warmer than the solution from the ground coil, the pump that will operate will be that one which circulates the solution through the air coil as well as through the chiller and ground coil.

If the feeler bulbs show, however, that the solution in the ground coil is warmer than that in the air coil, the other pump will be turned on so that heat will be drawn from the earth coil to be transferred to the refrigerant in the chiller.

ONLY CONTROL NECESSARY

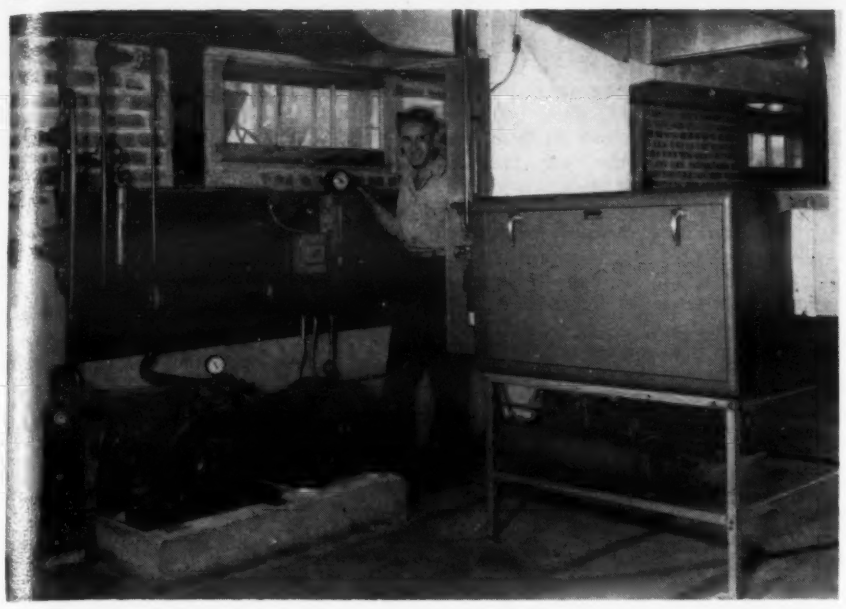
"This is the only control necessary for this part of the system and it's a Detroit Lubricator catalog item," Gretzner points out.

The principle that the solution will be pumped through the air coil when it can absorb more heat there than it can from the ground has been developed further to the point of providing an "earth-recharging" effect. The idea here is that when the atmosphere is warmer than the solution coming from the ground, as will happen frequently during winter, the solution could be pumped from the ground coil through the air coil and thence back to the ground, thus warming up the earth, or "recharging" it with low temperature heat. This heat cannot be lost because the earth adjacent to the coils is colder than the earth farther away.

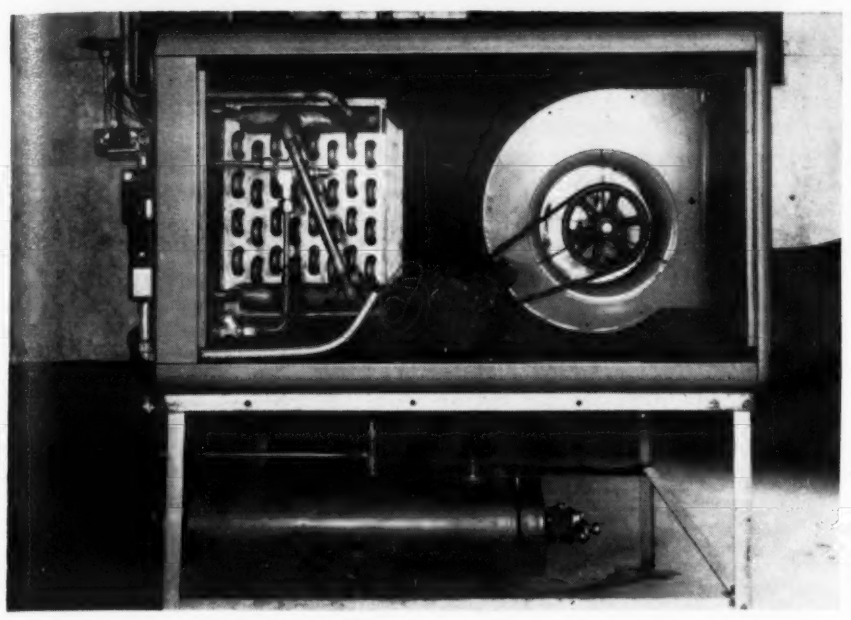
Here's how the wiring is hooked up to accomplish this. The "earth" pump is connected to the motor side of the compressor unit motor starter so the pump can run whenever the compressor runs. However, this pump doesn't necessarily have to start when the compressor is operating.

The other pump is wired to the line side of the compressor motor starter and these two wires run to the double-throw switch of the differential control so that only one of the two pump motors can operate at any one time. This hookup, however, permits the air-coil pump to operate even though the compressor isn't running, so that the earth can be

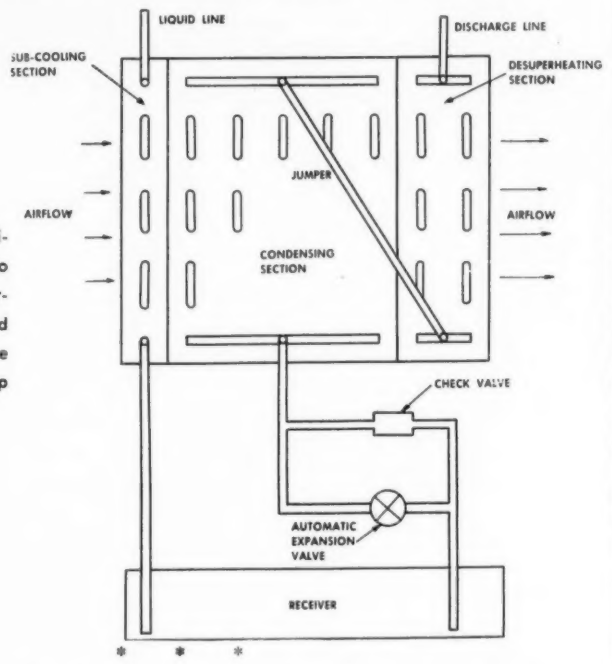
(Concluded on next page)



STANDARD refrigeration and air conditioning components such as would be employed in a package heat pump were neatly installed by Gretzner in the basement of his home.



SIDE REMOVED from McQuay conditioner to show blower, coil which serves as condenser in winter and evaporator in summer, receiver, and some controls and valves.



SKETCH of 8-row coil indicates how it is divided into three sections for "desuperheating," condensing, and sub-cooling to improve efficiency of heat pump system.

Prolonged Cold Spell Causes No Trouble

(Concluded from preceding page)

"recharged" if the air temperature is higher than the earth temperature.

Although two pumps are used in this arrangement, a single might very well be employed along with a set of solenoid valves to control the selection of the earth or ground coil system.

One other interesting aspect of the air coil pointed out by Gretzner is that Chicago has an average wind velocity of 11 miles per hour. This means then that flow of air across the coil averages about 1,000 f.p.m., which should provide an excellent rate of heat transfer. In fact, U factors varying from 6 to 10, depending upon sun and wind conditions, have been calculated for this particular coil.

No defrosting problem has been experienced with this air coil because there is no great differenece between the air temperature and the temperature of the solution passing through it. Because of the unique "earth recharging" feature, the circulating pump starts operating very soon after the air temperature rises above the solution temperature, so the temperature difference is always at a minimum.

As indicated previously, the equipment inside the house is pretty much a typical air conditioning and refrigeration system except that the coil in the airstream serves as a condenser during the heating season and an evaporator during the summer cooling period.

The house itself is of one-floor design with a full basement. There are five rooms, including two bedrooms, the house containing 7,720 cu. ft. upstairs and 6,750 cu. ft. in the basement. Only partial insulation is provided in the outside walls, but there's 3 to 4 in. of insulation in the ceiling.

Heat loss of the house was figured at 56,000 B.t.u./hr. at -10° F. design temperature. Upstairs temperature is maintained at 73° F. day and night—sometimes higher but never lower, according to Gretzner. In the basement, which is heated to a limited extent only, the temperature has been mostly in the low 60's.

Ducts, which discharge high on the inside walls of the house, receive their air from a McQuay RH15 air conditioner. The compressor is a 5-hp. Brunner 5000 model driven by a Century motor. Incorporated also in the system is a Temprite 3-ton oil separator, an Acme 5-ton heat exchanger, a Henry drier, Detroit expansion valves, White-Rodgers controls, and Cutler-Hammer switches and starters.

The evaporator-condenser coil in the McQuay conditioner is of 8-row design, but it has been manifolded into three sections. On the leaving air side there is a two-row "desuperheating" section, then a five-row condensing section, and at the incoming air side a single row "subcooling" section, as shown in the accompanying sketch.

The operation of the coil as well as the rest of the system may best be outlined by tracing the refrigerant flow on the heating cycle. Hot discharge gas from the compressor flows through the oil separator to the desuperheating section of the condenser coil, being fed at the top.

From the bottom of this section, the refrigerant is carried to the top of the five-row section of the coil. Then it is by-passed around the automatic expansion valve (used for summer cooling) through a check valve into the receiver which is located below the air conditioner.

From the receiver the refrigerant, which is now in the liquid state, goes up through the single-row sub-cooling section of the coil to the heat exchanger mounted on the panel above the compressor. From the heat exchanger it passes through the drier and then the expansion valve going out to the chiller buried near the outdoor air coil.

Evaporated suction gas from the chiller, where it has picked up heat from the alcohol solution, comes back through the heat exchanger and thence to the suction side of the compressor to repeat the cycle.

In terms of temperature, Gretzner reports that with a 163-lb. compressor discharge pressure, liquid refrigerant leaves the condenser section of the coil at 123° F. In the sub-cooling section of the coil, refrigerant temperature is further reduced to about 85° by the incoming 70° air. After passing through the heat exchanger its temperature is dropped to 60° or less.

This sub-cooling process results in an increase of refrigerating capacity or around 20% with no increase in electric power consumption.

Seasonal changeover from heating to cooling is accomplished by four hand valves, although Gretzner admits that switch-controlled changeover valve arrangement would be preferable.

During the cooling season the expansion valve used for the heating cycle is by-passed by a check valve arrangement just as the automatic valve for cooling is by-passed during winter operation.

The automatic valve for cooling is set at a pressure which will flood only half of the coil. This permits getting considerable drying through the 50% by-pass effect and it also reduces the capacity of the refrigerating equipment. And in further effort to reduce the excessive summer cooling capacity inherent in a 5-hp. system cooling a building this small, a ⅞-in. o.d. discharge line is used as the suction line.

WEATHER REPORT

Aside from this problem, though, the system seems to be operating very satisfactorily and to date has proved itself able to cope with frigid Chicago weather despite the small size and shallow depth of the earth coil, thanks to the earth-recharging system.

It is possible, of course, that a prolonged cold spell—such as was experienced in January and February of 1936—might overtax the system, but that is considered to be remote on the basis of the recent cold months of November and December, 1950.

December of 1950 was the coldest December Chicago has experienced in the past 51 years, according to Weather Bureau figures. In fact, only 10 months have been colder, nine January's and one February. November, 1950, was the coldest November except one in this century.

There were 2,316 official degree days in these last two months of 1950. Seven days were 0° F. or colder, and on one day the temperature dropped to -10° F., Weather Bureau records show.

Yet despite these low temperatures, the maximum operating time of the 5-hp. compressor unit during any 24-hour period was 13¾ hours. In the same two months the 5-hp. compressor motor and the two ½-hp. pump motors used 3,253 kwh., Gretzner reports. This is at the rate of 8,850 kwh. for 6,300 degree days, which is a normal Chicago heating season.

At 2 cents per kwh., which is the rate Gretzner pays for electricity, this would amount to $177 a year.

The lowest solution temperatures observed up to Jan. 2, 1951, were 21° F. going into the earth coil and 25¼° F. coming out of the earth coil into the chiller. The latter temperature had risen to 31° F. by Jan. 2 as a result of the recharging action and some mild weather.

As for the actual operating efficiency, it is believed to be good, but nothing definite can be determined until the operating records for the whole heating season are completed and analyzed, Gretzner points out.

Complete data is being assembled on operating conditions, running time, and the like, including temperature of the earth surrounding the ground coils. Small vertical pipes were placed in the ground at varying distances from the earth coils so that temperature readings could be taken regularly. These figures combined with the other data will prove interesting and valuable in heat pump research.

Heating & Ventilating Exposition--

(Concluded from Page 1)

final day of the technical society's meeting. The technical sessions open at 9:30 a.m. Monday at the Bellevue-Stratford.

Morning technical sessions will be held at the hotel and afternoon sessions at Convention Hall.

A wide number and variety of innovations in equipment are ticketed for introduction at the show. The advance information specifies some of the following equipment:

A new high velocity air conditioning system, which is said to use only half the conventional quantity of air, yet performs effectively through the use of a specially developed diffuser. It is designed to cut down duct air velocities from as much as 5,000 f.p.m. to speeds under 2,250 f.p.m. and then inject the air into the surrounding atmosphere without creating drafts.

SYSTEM USES 3½-IN. DUCTS

An innovation for single and multi-story buildings is a new individual room air conditioner made in both floor-mounted and suspended models. Another system, said to owe its origin to wartime experience with heating and ventilating problems under the unusual conditions existing in airplanes, used pre-fabricated ducts only 3½ in. in diameter in conjunction with "blenders" to provide circulation and recirculation of air. Room coolers are regulated individually, although a single thermostat controls the furnace.

Package air conditioners in 10, 15, and 20-ton sizes, adaptable to large supermarkets and theaters, sizes heretofore considered impractical for free-standing application, according to the manufacturer, will be shown.

One line of air conditioning equipment to be shown has been developed entirely to satisfy the requirements of classroom conditions in schools; another is an "ice-cell" air conditioning unit designed for peak loads of short duration.

LIQUID CHILLERS HAVE MANY USES

A line of liquid chillers, suitable for a number of different purposes, will be shown. These self-contained units may be used in summer to chill the air in forced warm air heating systems, or they may furnish chilled water circulation in hot water and steam heating systems. Or they can be used in chilling drinking water or in cooling machine tool coolant solutions.

Low velocity air diffusion through perforated metal plates, designed to reduce outlet pressures to draftless proportions, will be shown by another exhibitor.

Radiant heating by means of hot water or steam circulated in piping embedded in floors, walls, or ceilings, will be shown in varied applications, notably in a number of different types of baseboard radiators and convectors.

Also, radiant heating through "Electriglas" heating panels will be exhibited at the exposition for the first time. This new product of a 10-year research program is based on a specially electrified panel of tempered glass which has a chemical heating element permanently fused into it. This panel is framed in units of several sizes and shapes for mounting at pre-selected locations on outside walls, under windows, or in baseboard panels. The panels are connected into the local electrical supply and are thermostatically controlled through relays.

A new method of counteracting cold drafts from windows, skylights, and other cold spots is afforded by a line of supplementary heaters, which one of the largest producers of heating and ventilating equipment is introducing. Another exhibitor will show an opposite method of accomplishing the same purpose. In this system cold air, falling down the inner face of the window is withdrawn through a slot at the base, to be heated and circulated throughout the room, or discharged outdoors, as an automatic control system may dictate.

PERIMETER HEATING SHOWN

Another innovation at the exposition is perimeter heating. Long, narrow registers are set in the floor along the wall line, served by ducts beneath the floor. In this system warm air may be introduced at the floor level, while air that has been circulated through the room is withdrawn through registers high up on the wall. An alternative method, using the same method of piping, introduces warm air at the top of the room and exhausts cold air from the bottom, to be warmed and recirculated, or rejected, as conditions may require.

One of the most elaborate heating and ventilating systems to be offered at the exposition is a combination vacuum-pressure clinical unit for central vacuum and pressure systems for hospital installation. In this system the vacuum chamber inlet is fitted with a stainless steel interceptor using live steam for flushing and sterilizing, while the air pressure chamber is fitted with a germicidal lamp to sterilize the compressed air.

One of the largest exhibits, a well-known name in heating and plumbing products, for the first time headlines a cooling unit at the exposition. It will be teamed with a regular winter air conditioner and use the single set of ducts required by that system. The new unit is hermetically sealed, has compression mufflers built in and all moving parts cushion-mounted.

Featured at another display will be a new direct-fired suspended unit heater, incorporating an all-welded horizontal tubular heat exchanger; completely serviceable from below, and very compact. There is also a horizontal winter air conditioner designed for installation in attic, basement, or crawl space of ranch style homes; but also adapted for conventional or perimeter heating.

FIRST A.G.A. APPROVED WALL HEATER

Claiming to be able to show the first recessed wall heater to be approved under the 1950 A.G.A. central heating requirements, one of the exhibitors at the exposition will display a gas-fired unit for use in 4-in. studded walls covered with lath and plaster, wood panels, fiber board, or other combustible materials. A secondary heat exchanger incorporated in the design increases air circulation, provides faster heating and better distribution, and utilities heat ordinarily lost through the vent.

One display is confined to a wide assortment of equipment designed for industrial flow metering and features exceptional accuracy over a wide range. Suitable meters are valuable in cost accounting, it is pointed out, and frequently reveal possible savings of 10 to 30%. In a well-known line of steam traps, strainers, temperature regulators, water blenders, steam blenders, and other steam heating specialties there is now to be seen a motorized valve that is weather controlled.

Weather-actuated controls for heating plants in one case automatically change the length of the heating phase of the cycle, anticipate interior heating needs. They adjust the "on" period of measuring the heat loss from the system. A distinct advantage of this system from the landlord's point of view is that the entire installation is outdoors, convenient for regulation by the owner, but tamperproof by others.

17 Papers on ASHVE Technical Program

PHILADELPHIA—Seventeen technical papers and a symposium on "Man and His Relationship to Air" will be presented before the 57th annual meeting of the American Society of Heating & Ventilating Engineers opening here on Jan. 22.

The four-day program is divided into six sessions. Morning sessions are scheduled for the Bellevue-Stratford hotel and afternoon sessions for the Convention Hall adjacent to the Commercial Museum.

The program follows:

MONDAY, JAN. 22, 9:30 a.m.

"Losses from a Floor-Type Panel Heating System," by F. W. Hutchinson, D. L. Mills, and L. J. La Tart.

"Field Studies of Heat Losses from Concrete Floor Panels," by C. M. Humphreys, C. V. Franks, and L. F. Schutrum.

"Analysis of Air and Panel Cooling Systems," by Charles S. Leopold.

TUESDAY, JAN. 23, 9:30 a.m.

"The Efficiency of Bituminous Coal-Burning Space Heaters," by J. W. Tieman and F. L. Bagby.

"The Measurement of Smoke," by K. O. Beatty, Jr., and James E. Deas, Jr.

Report of Committee on Research by R. C. Cross, chairman.

"Rating of Fuel Oils by a Test Unit," by D. W. Locklin and G. V. Parmelee.

"Smoke Measurement In Fuel Oil Test Unit," by D. W. Locklin and G. V. Parmelee (to be presented by title).

TUESDAY, JAN. 23, 2:30 p.m.

"A Survey of Electrostatic Precipitation," by E. A. Walker and J. E. Coolidge.

"Theory of Earth Heat Exchangers for the Heat Pump," by L. R. Ingersoll, F. T. Adler, N. J. Plass, and A. C. Ingersoll.

"Factors Useful In Ground Grid Design for Heat Pumps," by George S. Smith.

WEDNESDAY, JAN. 24, 9:30 a.m.

Symposium—"Man and His Relationship to Air," by Dr. Eugene F. DuBois, Dr. Robert W. Keeton, and Charles S. Leopold. Nathaniel Glickman, moderator.

WEDNESDAY, JAN. 24, 2:00 p.m.

"Operating Experience and Data from Sidewalk Snow-Melting System," by L. A. Stevens and G. D. Winans.

"Principles of Effective Heat for Steam Heated Structures," by C. O. Mackey, N. R. Gay, R. D. Tutt, E. G. Powell, and E. L. Broderick.

"Heating and Thermostatic Controls In the Transportation Industry," by N. O. Kirkby.

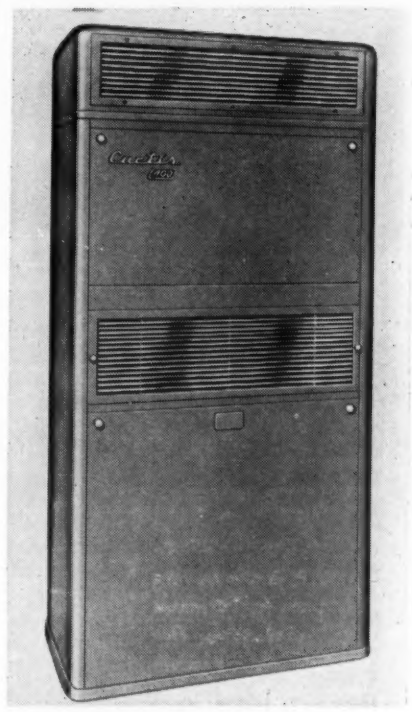
"Water-Vapor Permeability of Building Papers and Other Sheet Materials," by E. R. Bell, M. C. Seidl, and N. T. Krueger (to be presented by title).

THURSDAY, JAN. 25, 9:30 a.m.

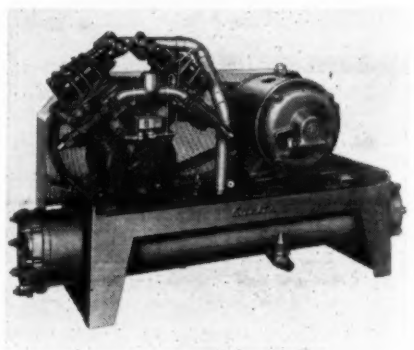
"Use of Aircraft Propellers for Axial Flow Fans," by E. C. Lundquist and M. J. Hamilton.

"Roof Spray for Reduction In Transmitted Solar Radiation," by G. E. Sutton.

"Solar Energy Transmittance of Figured Rolled Glass," by G. V. Parmelee and W. W. Aubele.



STORE CONDITIONER: Six models now in 2 to 15-ton line.



COMPRESSOR: Curtis 40-hp. model.

* * *

Curtis Bows 3 Store Units, 20-40 Hp. Compressors

ST. LOUIS—Three new packaged store conditioners are being introduced by Curtis Refrigerating Machine Division at the International Heating & Ventilating Exposition, together with a new line of 20-hp. through 40-hp. refrigeration compressors.

The new store conditioners complete the Curtis line in this style of product from 2 to 15 tons, the line now consisting of 2, 3, 5, and 7½-ton self-contained models, and 10-ton and 15-ton central type conditioners.

The new compressors in the 20-hp. through 40-hp. sizes can be equipped with automatic capacity reduction and have full pressure lubrication on all bearings. They can be supplied as compressor units, or combined with a variety of cleanable shell-and-tube condensers to meet any conditions.

In addition, Curtis is introducing several units of an entire new line of combination air and water-cooled condensing units from ½-hp. through 3-hp. capacities.

How To Reduce Cooling and Boost Dehumidification Ratio To Meet Mild Temperature and High Humidity Condition

LONG BEACH, Calif.—There are a number of ways of reducing the capacity of an air conditioning system during mild but humid weather without creating uncomfortable conditions, and the proper selection—with proper consideration given to cost and other factors—is often the difference between a satisfactory and unsatisfactory installation, it was pointed out by D. D. Wile, chief engineer of Refrigerating Engineering, Inc., in a discussion at the West Coast Refrigeration and Air Conditioning Educational conference.

MILD HUMID DAYS UPSET DRY HEAT LOAD RATIO

On mild, humid days the humidity load within an air conditioned space remains about constant, but the total humidity load may increase somewhat through the ventilation air. The dry heat load, however, decreases in mild weather and the proportion of humidity load to dry heat load increases.

Where a compressor is properly balanced with the coil for peak air conditioning loads cannot properly handle less-than-peak loads by simple on-and-off operation, Wile pointed out. Compressor capacity or "modulating" control with two compressors doesn't help either, because when one compressor is shut off the coil is oversize for the remaining compressor and the evaporating temperature rises and humidity increases.

A "split system"—two independent refrigeration systems each operating on a portion of the cooling coil—permits modulating of compressor capacity by turning off one compressor at a time. It is not much better than off-on systems because the proportion of dehumidification during partial load is about the same as during full load, whereas it should be increased to match the increased humidity ratio.

SMALL COIL SURFACE GIVES LOW HUMIDITY

To get low humidities in ordinary commercial refrigeration operation, Wile explained, the system is operated at a large temperature difference between air and refrigerant, this being done by using a small amount of coil surface compared to the compressor capacity.

In applying this to the problem of less-than-peak loads in air conditioning this can be accomplished by (1) cutting off some of the rows of the coil and (2) cutting off part of the face area of the coil.

To get the kind of capacity reduction needed it will be necessary to cut off a large portion of the coil. For example, in cutting 4 rows off of a 6-row coil, the remaining 2 rows would operate at approximately 25° evaporating temperature and approximately 70% of full load capacity. But Wile says the "thin coil" of 2 rows does a poor job of dehumidification and such a system is satisfactory only in relatively dry climates. When operating on 2 rows, the pressure control should be set to cut out well below the balance point—at about 20 lbs. or lower, and cut-in point should be above the freezing point, at about 33 lbs.

COIL FACE AREA CONTROL MAY WORK FOR SMALL JOBS

In coil face area control—where the amount of coil surface is reduced by cutting off part of the face area—there will be a considerable decrease in evaporating temperature and a corresponding improvement of the dehumidification effect. Wile recommended this for smaller size air conditioning jobs where more elaborate types of damper controls are not justified.

However, he cautioned that care should be exercised to provide enough coil area so that moisture will not freeze on the coil surface. A split so that 40% of its face operation is in operation during partial load is about the minimum, and Wile recommended 40 to 50% of the face area in use, with pressure controls set to cut out well below the balance point when operating on one solenoid valve, and the cut-in slightly above the freezing point. Differential should be wide enough to avoid short-cycling.

BY-PASSING AND RESTRICTING AIR FLOW ARE OTHER METHODS

Other methods of reducing the capacity and improving the dehumidification ratio of an air conditioning system are to reduce the air flow through the cooling coil. This is done by by-passing part of the air around the coil, or by restricting the total air flow, or using these methods in combination.

In the by-pass setup the damper is operated by a modulating damper motor under the control of a modulating room thermostat. The damper motor has a cam switch to close off the liquid line solenoid valve when the damper is wide open.

Effectiveness of by-pass damper control is limited, Wile said, because only a small portion of the air can be by-passed without increasing the total air quantity and overloading the fan motor, or creating undesirable noises in the system.

Air volume control is usually brought about by having dampers placed in the air stream or across the coil face so as to reduce the total volume of air handled by the system. Control is through a modulating damper motor and room thermostat with a cam switch on the damper motor to shut off refrigeration at the end of the damper travel and thus prevent overcooling. Trouble with this method is that reduction of the air volume may upset air distribution through the system and cause unequal temperatures.

FACE AND BY-PASS DAMPER CONTROL

Face and by-pass damper control is a method which is a combination of face and by-pass dampers interconnected so one damper closes as the other opens. As the air quantity passing through the coil is decreased the amount of air by-passed around the coil is increased so as to maintain the total air flow about constant. Dampers are operated by a modulating damper motor under the control of a modulating room thermostat.

Wile said this is probably the ideal method of controlling a small system, where its cost can be justified, since it offers the maximum amount of dehumidification in mild weather of any of the other methods, except for systems using reheat.

Contractors' School--

(Concluded from Page 1)

take about 18 months to build up sufficient funds to get the school started.

He declared that when the school opens all 1,500 journeymen steamfitters here would be required to spend four hours per week in night classes to learn the latest techniques of the trade.

Apprentice members will be given a thorough training in their craft, he added. Entrance will be limited to union members, he said.

"The training received at the school by our members will enable them to go out on a job in any related field of our craft and handle it in an excellent manner," Callanan asserted.

"Instead of following the course of other unions by seeking a welfare agreement that would solely benefit our members, we asked first for a school which will benefit the contractors and the general public as well as ourselves."

Provision has been made, however, that when the funds accumulated are more than enough to run the school, then the surplus will be devoted to such welfare benefits as group life, accident, or health insurance.

Funds designated for the school will be paid by the contractors directly to a St. Louis bank. The fund then will be administered by six trustees, three from the contractors association and three from the union.

In case of any deadlock between this board, procedures have been arranged for the selection of an impartial trustee to settle the dispute.

Lakes Regions Should Save Water, Too

Limitations In Pumping Capacity and Sewer Facilities May Force Cities To Use More Water-Saving Equipment

DETROIT—"That water conservation measures will ultimately have to be taken in the Great Lakes area, as well as in sections of the country which derive their water from other types of sources, is almost a foregone conclusion," John Rehard, chief safety engineer for Detroit, told the Detroit ASRE section and members of the local refrigeration contractors association.

In this area supply of water presents no problem, but limitations in pumping capacity, mains, and especially sewer facilities are likely to force restrictive measures that will hit commercial refrigeration and air conditioning, he indicated.

"The Great Lakes cities have at least attempted to keep up with the problem by installing adequate water and sewage facilities. Nevertheless, it is an almost impossible job for city planners to look far enough ahead to determine what the requirements of a distribution system of any kind will be far in the future.

DIFFICULT TO HAVE FORESEEN BIG INCREASE IN USAGE

"The advent of refrigeration and air conditioning systems using city water as the means of cooling the refrigerant in condensers has brought about an increase in water usage which obviously could not have been provided for in the older parts of our cities since surely it could not have been anticipated even as much as 15 or 20 years ago," Rehard said.

"The average daily water consumption for the city of Cleveland and the municipalities inside Cuyahoga county has risen from 160.5 million gals. per day in 1939 to 245.1 m.g.d. in 1949. The present plant capacity in Cleveland is 300 m.g.d. with additions now planned to bring the plant capacity to 415 m.g.d.

"They regard their sewer load as nothing particularly worrisome at this time, and it would appear that unless they run into local conditions of street main sizes which would necessitate conservation measures, it may be some time yet before they will be faced with the possibility of an acute water shortage.

"However, the city of Chicago is not quite in such a fortunate position," he explained. "They have already determined that their peak consumption of 1,150,000,000 gals. per day is approaching the limits of their distribution system and of their sewage system, with the result that a study has been made looking into the possibilities of conservation measures. It was determined that there was 150,000 hp. of air conditioning equipment using city water in operation in that city during 1948, and that this equipment accounted for the use of 126 m.gd., or approximately 9% of the daily peak consumption of water.

HOW CHICAGO COULD SAVE OVER 78,000,000 GALLONS

"An interesting fact drawn from this survey shows that if air conditioning systems of 10 tons and more capacity in the city of Chicago were equipped with water conservation devices which would use only 10% as much water as shell and tube condensers, the water conserved would be approximately 78,246,000 gals. per day.

"These figures deal only with the equipment installed and in operation during the year 1948," Rehard emphasized. "The matter still further complicated by the fact that the first six months of 1948 saw the installation of more than twice the number of refrigerating systems as were installed in the entire year of 1947, and 1949 showed a proportionate increase over 1948. In the year 1950, in June alone, 4,625 tons of new refrigeration using water-cooled condensers were installed in the city of Chicago.

"Significantly, Gerald Gearon, supervising mechanical engineer and chief deputy inspector for the city of Chicago, observes that, while air conditioning is often given all the blame for this increased water consumption, the commercial refrigerating system is probably the worse offender because of its continuous operation.

HOW WATER USE HAS CLIMBED IN DETROIT

"In our own city the population served by the water system has increased from 2,322,417 in 1945, to 2,418,126 in 1949. The total yearly pumpage of water in 1945 was 119,202,800,000 gals., while in 1949 there was a total of 137,154,300,000 gals. of water pumped. Obviously, something caused an increase in water usage other than just the growth in population. This deduction is further confirmed by the fact that in 1945 the daily per capita consumption of water was 131 gals., while in 1949 it was 155 gals.

"To shed some light on the possible reasons for the increase in water consumption in the city of Detroit, we might briefly survey the figures indicating the installed refrigeration tonnage to see if they in any way may indicate what has happened.

"In 1946 the recorded tonnage of commercial and industrial refrigeration systems, including air conditioning, was 48,665 tons. In 1947 the recorded tonnage was 53,632 tons, or an increase of 13% over 1946. Referring again to water data, we find that in 1946 the daily per capita water consumption hit a low of 131 gals., while in 1947 it jumped to 144 gals.

"Again, in 1948 we had 63,060 tons of refrigeration in operation, which represented a 17.6% increase over 1947, and in that year water consumption was 147 gals. per person.

In 1949 there were 73,565 tons of equipment in operation, representing an increase of 16.66% over the previous year, and in that year the per capita use of water rose to 155 gal. per day.

"It should be noted," said Rehard, "that there was over 50% more refrigeration in operation in 1949 than there was in 1946. Average daily pumpage in 1949 was 375,765,205 gals. and the maximum daily pumpage for that year was 571,600,000 gals. However, the pumps have been operated at capacities equivalent to rates as high as 878,400,000 gals. per day on occasions.

"While pumping capacity of the city of Detroit is at present somewhat ahead of requirements, even on days of peak consumption sewer capacities in some sections of the city have already been approached.

WHAT REMEDIAL ACTION CAN BE TAKEN?

"It was not our thought in this discussion to propose ways and means in the form of conservation measures for our own city and ones similarly situated. It was rather the intention to present as briefly as possible the facts that are significant and allow you to draw your own conclusions as to the possibilities of remedial actions.

"However, it may be well to point out here that there are some things that could be done toward the reduction of water used. For instance, leaking water valves are economically unsound for the user, as well as a headache to the contractor who installs and services refrigerating equipment.

"There are a lot of water valves which, after the first few weeks of operation, remain open the rest of their useful lives. It might be a good idea to concentrate on the use of reliable water valves and to insist that the manufacturers produce such equipment," he declared.

"On new jobs and on old jobs that are being repaired and more or less brought up to date it might be well to suggest the use of cooling towers or evaporative condensers not only as a means of water conservation but as an economic measure."

JUST ASK US!

Turn to "What's New" page for free, useful information.

Government Contracts

PROCUREMENT INFORMATION

The following is a list of proposed procurements issued by the various indicated U. S. Government procurement offices. This list is compiled and made available daily on a free pick-up basis. Prospective bidders may obtain complete bid sets by a request **to the purchasing office under which the purchase is listed** in this Synopsis. Be sure to identify completely the bid invitation you wish by including in your request the item description, the invitation number or reference number and the opening date. This will save time in filling your request. For reasons of economy, specifications are normally not included with the bid invitations unless the specification is a new one. First time bidders on a particular item should request a copy of applicable specifications and drawings at the time the request for a bid set is made.

DEPARTMENT OF DEFENSE

It is not necessary to refer solely to the issuing office for additional data on a bid invitation issued by any of the following U. S. Army Ordnance Offices: Ordnance Tank Automotive Center; Detroit Arsenal; Frankford Arsenal; Picatinny Arsenal; Raritan Arsenal; Rock Island Arsenal; Springfield Armory; Watertown Arsenal; and Watervliet Arsenal. Complete information on any purchase listed by any of those offices alone can be obtained from the Ordnance District Office nearest you. Its address is on file in your nearest Department of Commerce Field Office. Do not ask an Ordnance District Office for information on a purchase unless it is listed by one of the above-named offices. **Ordnance District Offices do not have information on any other purchases.**

Description	Quantity	Invitation No.	Opening Date
Commanding Officer, Naval Supply Depot, Mechanicsburg, Pa., Attn.: Code 778B			
V-Belts, Single And Matched Sets	39,869 ea	765267	2 Feb 51
Commanding General, Ord. Tank Auto Center, 1501 Beard St., Detroit 9, Mich.			
Valve Shut Off	250 ea	2525	23 Jan 51
Various Types of Valves	Various Qty	2585	10 Feb 51
Valve Shut Off	880 ea	2579	31 Jan 51
Navy Purchasing Office, 111 East 16th St., New York City			
Pump, Liquid Centrifugal	4 ea	8090	31 Jan 51
U. S. Naval Ordnance Plant, 7500 W. Roosevelt Rd., Forest Park, Ill.			
Blowers Electric with Spare Parts and Attachments and Instruction Books, Spec Jan C 632 Amend 1	140 ea	H53215	26 Jan 51
Valves Temperature Regulating for Liquids To Be Equal to the Powers Regulator Co. Or the Fulton Sylphon Co. Part Nos.	125 ea	H53364	29 Jan 51
Valves Composition Type A Various Sizes Spec 45 V 15	350 ea	H53336	29 Jan 51
Tubing Seamless Copper Nickel Alloy Various Sizes Spec 44 T 40 B	122.100 ft	C53150	29 Jan 51
Refrigerator, Reach-In, Shipboard Type Spec Mil R 15456, Ships	10 ea	H53518	30 Jan 51
Wright Patterson Air Force Base, Dayton, Ohio			
Fittings, Flared Tube, Outside	1,875	4767	30 Jan 51
Commanding Officer, Naval Supply Depot, Mechanicsburg, Pa., Attn.: Code 778B			
Thermometers, Dial, Industrial, Various Ranges To Various Govt. and Commercial Specs	12,985 ea	765262	31 Jan 51
District Public Works Office, Twelfth Naval District, San Francisco, Calif.			
Work Consists of Restoration of Fire Damaged Portion of Building Including Exterior Stuccoing, Restoration of Plumbing, Heating and Electrical Systems At U. S. Naval Station, Treasure Island, San Francisco, Calif., Deposit of Ten Dollars Required For Plans and Specs.		26198	24 Jan 51
Aviation Supply Office, 700 Robbins Ave., Philadelphia, Pa.			
Kit Refrigeration Testing Complete To Be Equal to The Mueller Brass Co. Part No.	175 ea	H53510	29 Jan 51
Supply Officer, Philadelphia Naval Shipyard, Philadelphia 12, Pa. Attn.: Purchase Section			
Coolers, Drinking Water, Elec. Bubbler Type, To Be In Accord with Fed Spec 00-C-566B	10 ea	S-2012	29 Jan 51
Commanding Officer, Naval Supply Depot, Mechanicsburg, Pa., Attn.: Code 778B			
V-Belts, Single and Matched Sets	565 ea	765267	30 Jan 51
Signal Corps Procurement Agency, 2800 South 20th St., Philadelphia 45, Pa.			
Barometers Hydrometers	Various	636-04	16 Feb 51
Gauges	Various	607-04	15 Feb 51
Brass and Copper Tubing	Various	788-16	14 Feb 51

GENERAL SERVICES ADMINISTRATION

Description	Quantity	Reference No.	App. Bid Date
Chief, Purchase Division, Federal Supply Service, General Services Administration, Region III, Room 7101, 7th and D Sts., S. W., Washington 25, D. C.			
Fans, Electric, 16", 12" Deck and Wall Type, 24", 30" Pedestal Type, 12" Air Circulators	28,255 ea	10622/7/	1-19-51
Chief, Purchase Division, Federal Supply Service, General Services Administration, Region III, Room 7101, 7th and D Sts., S. W. Washington 25, D. C.			
Refrigerators and Low Temperature Storage Cabinets	40 ea	8F-96316	1-26-51
Chief, Administrative Services Section, Public Building Service, General Services Administration, 12th Floor, 250 Hudson St., New York 13, N. Y.			
Precipitator Repairs Etc., U. S. Assay Office, New, 32 Old Slip, New York, N. Y.	1 Job	PB-Region 2 12/18/50	1-31-51
Chief, Supply Section, Public Buildings Service, General Services Administration, Washington 25, D. C.			
Valves, Expansion, Misc.	143 pcs	749	1-29-51
Bonnets and Diaphragms, For Marsh Thermostatic Steam Traps, Misc.	1,670 pcs	757	1-29-51
Chief, Purchase Division, Federal Supply Service, General Services Administration, Region III, 7101, 7th and D Sts., S. W., Washington 25, D. C.			
Electric Water Coolers, Land Use, Various Types and Sizes	61 ea	10W-95788	1-30-51

TENNESSEE VALLEY AUTHORITY

Description	Quantity	Reference No.	App. Bid Date
Chief, Materials Branch, Tennessee Valley Authority, Chattanooga, Tenn.			
Air Conditioning Units	2 ea	690405	1-17-51
Thermostats for Heating and Ventilating Systems	18 ea	658432	1-18-51
Chief, Materials Branch, Tennessee Valley Authority, Chattanooga, Tenn.			
Copper Tubing ND Fittings	12 items	665910	1-22-51

CONTRACTS AWARDED AS OF JAN. 10, 1951

Description	Quantity	Dollar Value	Contractor and Address
Chicago Quartermaster Depot, U. S. Army, 1819 West Pershing Rd., Chicago 9, Ill.			
Cooler, Drinking Water, Electric	501	57,031.00	General Electric Co., Bloomfield, N. J.
Oven, Baking & Roasting	296	105,657.20	S. S. Blodgett Co., Burlington, Vt.
Oven, Baking & Roasting	270	98,782.30	American Stove Co., St. Louis, Mo.
Bureau of Ships, Washington, D. C.			
Conversion of ex-Maritime Administration reefer vessel to a Naval refrigerated stores issue ship		2,000,000.00	New York Shipbuilding Co., Camden, N. J.
Blower Conversion Parts	88 sets	50,000.00	Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

Refrigeration Problems

and their Solution

by Paul Reed

For Service and Installation Engineers

Paul Reed

Mixing Water Vapors 'F-12' Vapors (5)

USING A DEEPER VACUUM

All this time we have used a compressor that would pump a 29½-in. vacuum. We used this because it was the best compressor we had, that is, it pumped a lower vacuum than any spare compressor that we had. At that, it was an uncommonly good vacuum pumper for a refrigerating compressor.

Vacuum pumps can be bought that will draw a much better vacuum than 29½ in., even though a 29½-in. vacuum is only ⅛ of a pound per square inch above absolute zero pressure or a "perfect vacuum."

Suppose that we had a vacuum pump that would draw a vacuum of as low as 29.82 in. of mercury, or ⅒ of an inch of mercury above a "perfect vacuum," or about 1/20 p.s.i.a. This sounds like a rather low vacuum, and, of course, it is, but vacuum pumps are commercially available that will pump a vacuum within one "micron" (which is one one-thousandth of a millimeter of mercury) of a perfect vacuum. These are used to evacuate radio tubes, dry out electric capacitors, etc.

So we use a good vacuum pump and pump a 29.82-in. vacuum on the coil, in the 60° room and we use no heat on it. At first it is a slow process until all the water in the coil is vaporized. During this time the suction pressure to the vacuum pump is 29.4 in. of mercury vacuum corresponding to 60° saturated water vapor.

Just as the water disappears, the pressure is 29.4 in. vacuum and the density of the saturated water vapor is .001012 lbs. per cubic foot, which corresponds to a 60° dewpoint. During this period, we could have speeded up the vaporization of the water into water vapor by applying heat to the coil.

As soon as the water disappears, the pressure begins to drop, and as the pressure drops, the density of the water vapor also drops, and in the same proportion (as the absolute pressure), and the dewpoint temperature of the water vapor drops also.

Finally, when the pressure gets down to 29.82 in. of mercury vacuum (⅒ of an inch of mercury above a perfect vacuum) the density of the vapor has become .000173 lbs. per cubic foot. The steam tables show that this density (or a specific volume of 5,800 cu. ft. per pound) corresponds to 19½° so we have dried the interior of the coil down to a 19½° dewpoint, just below 20°. Now we can use the coil as an evaporator at 20° without moisture condensing out.

DEEP VACUUM PRODUCES LOW DEWPOINT

We see, therefore, that in drying a coil or other piece of equipment by pumping a vacuum on it, the "depth" of vacuum is the important factor that governs how dry we get the coil. Heat helps speed up the process, and can aid the vacuum to a limited extent, but how deep a vacuum we use is the most important thing.

Some readers, especially the "old-timers" will probably wonder why they were successful in drying out equipment by baking it, if the above is true. The answer is that the bake oven was, and still is, very helpful in *quickly* removing the larger quantities of moisture—that moisture that clings to the surface or soaks into the pores of the material.

"But," we hear, "we baked out our coils, compressors, and other equipment for sulphur dioxide and we put them in without driers and we had no moisture trouble."

That is true. We had a good deal of moisture left in the equipment we so carefully baked out. but when we charged it with SO_2, the SO_2 absorbed the moisture and it did not exist as free water or water vapor. It formed sulphurous acid, and we saw the blackening effect of this acid on the inside walls of the compressor crankcase, in the heads, on valve cages, and other parts.

If the equipment was well baked, it rarely gave trouble with methyl chloride, for the same reason; although the acid formed was hydrochloric acid and there was less of it and it did not attack the parts so much.

"Freon" absorbs extremely small amounts of water, just a very few parts per million (less than 20 p.p.m. for most refrigeration temperatures), so we must dry out "Freon" systems as we never dried out sulphur dioxide or methyl chloride systems.

On the other hand, since "Freon" absorbs very little moisture it forms extremely—usually negligible, amounts of acids, so we get almost imperceptible corrosion of inner parts of systems operating below 32°. On "Freon" systems having evaporators above 32°, such as air conditioning systems, corrosion from free water is more apt to be noticed.

Next we will explore and study other ways of drying out refrigerating systems.

Washington Airport Gets 350-Ton Cooling System

WASHINGTON, D. C.—Washington National Airport, serving the nation's capital and the area surrounding the District of Columbia, recently installed Worthington air conditioning for the new South Extension.

The new system, having a capacity of 350 tons of refrigeration, includes one Worthington 56C51 central refrigeration system and two Worthington 3L-1 pumps. The contractor was W. G. Cornell Co., Inc.

Performance of Solid Adsorbents

How They React When Exposed to Moving Air Stream Shown In Tests at Penn State

NEW YORK CITY — Results of tests to determine performance characteristics of a solid adsorbent, in this case silica gel, when exposed to an air stream in motion were presented before the recent annual meeting of the American Society of Refrigerating Engineers by W. L. Ross and E. R. McLaughlin of Pennsylvania State college.

"The phenomenon of adsorption," pointed out Ross in presenting the paper, "is not too well known at this time. Many view it as a physical problem, while others consider it as electro-chemical in nature. Here we might think of it as an approach to a state of equilibrium which is reached when the vapor pressure above the water on the desiccant is equal to the vapor pressure of the gas being dried.

"When this point of equilibrium is reached the adsorbent is said to be saturated, and before further dehumidification can take place the substance must be reactivated by subjecting it to an elevated temperature which boils off the vapor held by adsorption."

In conducting the tests, it was explained, six major factors along with others of secondary importance were investigated—ambient dry-bulb temperature, ambient relative humidity, thickness of the desiccant bed, adsorption airflow, desorption heater power, and desorption airflow.

The tests themselves were performed with air in the elaborate Climatometer room of the Pennsylvania Engineering Experiment Station, which is heavily insulated and has facilities for heating, cooling, humidifying, and dehumidifying.

Some of the results from the series of tests were reported as follows:

The "break point" (that point where efficiency of adsorption begins to drop off) is not greatly affected by face velocity; it varies somewhat with ambient dry bulb; it decreases with increased thickness of desiccant bed.

The time required to reach the break point decreases with increased face velocity; decreases with increased dewpoint; decreases with higher relative humidity; decreases with increased ambient dry bulb.

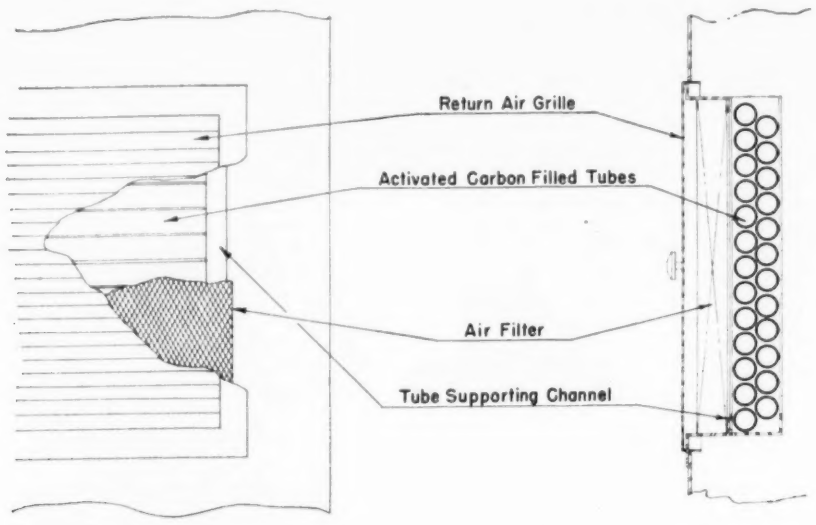
Adsorption efficiency to the break down decreases with increased face velocity; decreases with increased ambient dewpoint temperature; decreases with increased ambient dry bulb.

As for data on the desorption characteristics of silica gel, Ross and McLaughlin indicate that the complete desorption time increases with ambient dewpoint; increases with higher relative humidity; decreases with higher ambient dry bulb; increases with increased bed thickness.

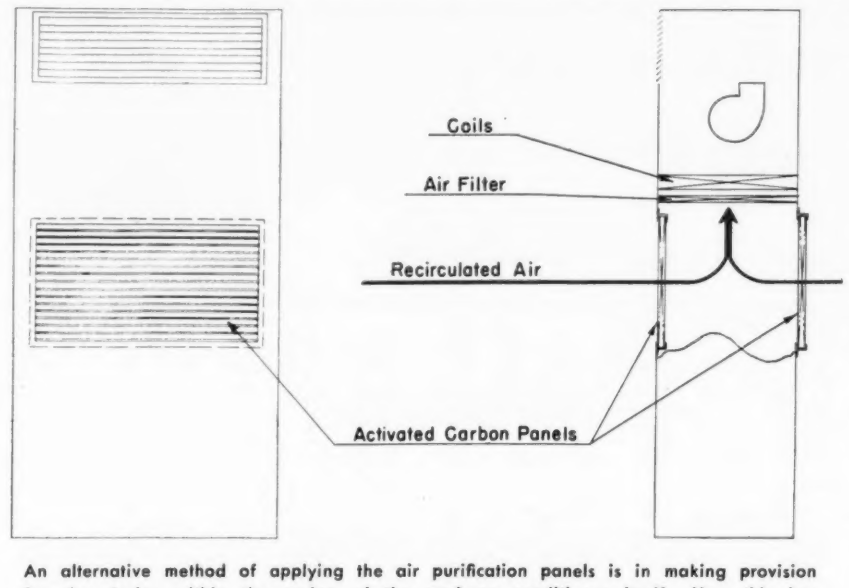
G-E Offers Special Belt To Dealers for Use In Washer Promotion

BRIDGEPORT, Conn. — A colorfully illustrated endless belt which revolves continuously through the wringer rolls of a General Electric washer is being made available to the company's retailers to point up major sales and product features.

The belt is made of plastic and is eight inches wide and six feet long. It is secured in position on a washer by two clamps. Designated Pub. No. 6-360, it is available through G-E distributors for $1.25.



One method of using activated carbon air purification devices with package type air conditioners is simply to add activated carbon panels to the grille openings of the conditioner, in the manner that is pictured in the above drawing. Proper location of the panels in such an installation is indicated.



An alternative method of applying the air purification panels is in making provision for the device within the casing of the package conditioner itself. How this has been accomplished on a package "store type" conditioner of 5-ton capacity is demonstrated above. Some experimental work may be done soon with a similar application in room coolers.

Odor Problem with Room Coolers: *Activated Carbon Adsorbers Could Cut Outside Air Requirements In Room Coolers, Engineers Are Told*

NEW YORK CITY — The odor problem is present in all air conditioning applications, but there are reasons why the problem is perhaps particularly acute in the use of room air conditioners, it was brought out in the presentation of the paper "Deodorizers and Their Application to Room Air Conditioners," and the subsequent discussion from the floor. This paper was presented during the Room Air Conditioner Conference at the recent meeting of the American Society of Refrigerating Engineers.

In the main presentation of the discussion on deodorizers, John H. Bartol of W. B. Connor Engineering Corp., pointed out that the ventilating engineer knows how much odor may be expected to be generated and released by a given occupancy, under given conditions, in a given place. This is known as the "odor gain."

The designer then calculates the amount of odor-free air that must be supplied to the space continuously to provide the "dilution effect" which will offset the estimated odor gain.

CORRECT CALCULATIONS FREE AIR OF ODORS

Bartol pointed out that if the engineer's calculations are correct, "nothing happens." That is to say, air quality in the space assumes and remains in a satisfactory or desirable equilibrium. The conditioned space would tend to get foul and odorous, however, if it weren't for the continuously counteracting dilution effect.

In order to supply odor-free outside air to the space, Bartol pointed out, some space air must be displaced—that is, drawn or forced out. But the air withdrawn or discharged from the space is not foul or odorous, the speaker stated, since it is at the quality maintained in the space by the ventilating system. The only reason for displacing it is in order to make room for the odor-free air that is supplied to the conditioned space to provide the necessary dilution effect.

The same kind of action takes place with cooling, Bartol said. The air discharged or withdrawn from a conditioned space isn't warm—it is space air and, therefore, at the desirable temperature maintained in the space by the air conditioning system. It is displaced to make room for the colder air—air that is colder than the space—that must be supplied to provide the cooling effect to prevent the space from getting warm.

RECIRCULATED AIR BECOMES FOUL RAPIDLY

"If we were concerned only with temperature, there would be no reason to throw any air away," Bartol commented. "We would recirculate all of it indefinitely and only cool it enough, in recirculation, to take out the internal heat it accumulates. However, if we did that it would become foul very rapidly. Thus, there is a need for a ventilating effect—introduction of a certain amount of fresh air.

"But when we use new outside air for ventilation, we find that it adds to the conditioning load because any outside air brought in must be converted from outdoor to indoor thermal conditions. This is the reason why practically every air conditioning system recirculates as much air as possible.

"We can eliminate a larger percentage of this extra conditioning load if, instead of using outside air for ventilation, we continuously purify the space air as it is recirculated—by constantly extracting the accumulated odors just as, with cooling, we constantly extract the accumulated heat and just as, with filtration, we extract the accumulated dust."

Under certain conditions, some minimum of outside air has to be supplied in an air conditioning system to pressure the space against infiltration, but with room conditioner applications, this is a rare requirement. In fact, in most room cooler applications there is little if any outside air introduced directly into the conditioned space, certainly not enough to pressurize air, nor to provide top quality ventilation. This is what makes room air conditioner applications a special problem so far as odor control is concerned.

VARIOUS DEODORIZING AGENTS DISCUSSED

Bartol then discussed various kinds of deodorizing agents. Masking agents merely replace one odor with another—and some that use a vaporizing process serve further to contaminate the atmosphere, Bartol said. With reference to ozone, the speaker said that while it is an extremely powerful oxidizing agent, its capacity for deodorization is predicated on the amount used. When it is used in a sufficiently large concentration to serve as an effective deodorizing medium, its use may be detrimental to health.

The adsorption type of odor eliminator is, however, a practical and positive method, Bartol declared. With activated carbon adsorbers, stale and odorous air is converted to freshness through the constant removal of vapors and odor gases from the already conditioned air in recirculation, and this permits a substantial reduction of outside air intake.

Such adsorbers are designed for removal of odor impurities within a reasonably compact space, without imposing an excessive resistance to the air flow and providing for easy removal of the carbon periodically for reactivation with a minimum of interruption in service.

While activated carbon adsorbers have not been applied specifically to room air conditioners as yet, they have been on packaged "store type" conditioners, and some comparable conclusions might be drawn as to use and results, the speaker said.

"Take for example the average 5-ton packaged unit. This size generally has a top-rated capacity of about 2,000 c.f.m. total air, and a cooling capacity for handling about 20%, or 400 c.f.m. of outside air under average temperature zone conditions. In many cases these conditions will be satisfactory.

"Let's assume, however, that the occupancy of a store or restaurant in which the unit is installed is substantially increased during the rush period. Odor generation then becomes abnormally high because of the denser occupancy—space per occupant is a vital factor in ventilating calculation—and the generation of body, smoking, or food odors is constant whether the person responsible for them occupies a small or large space.

"Under these conditions, the 400 c.f.m. of fresh air no longer satisfies the ventilation requirement, and air quality will immediately suffer unless an additional quantity of fresh air is supplied to the space. Unfortunately the average unit is not equipped to cool down a larger supply of outside air—if it is required to do so, the cooling effect of the unit consequently decreases.

CLASS 'A' RAILROADS USE ACTIVATED CARBON

"This problem has been satisfactorily handled by the use of activated carbon air recovery equipment where, it can be said, the design engineer can have his cake and eat it too. By the application of activated carbon panels, a predetermined amount of recirculated air can be constantly purified so that, if necessary, the total capacity of the unit—in this case 2,000 c.f.m.—can all be 'fresh' air without having any effect on the thermal conditions within the space. The recognition of this principle has resulted in its adoption by about 90% of the class 'A' railroads in this country."

The speaker pointed out that standard panels of one or more rows of closely spaced perforated metal tubes, each compactly filled with granular activated carbon—make it possible for the air conditioning engineer to introduce any amount of purified air desired into a system.

In the application of this air purification equipment there are two choices. First is the addition of panels to the grille openings of a standard room air conditioner.

The alternative method is perhaps more applicable for use by the manufacturers of the room air conditioner, Bartol said. This consists of making provision for and applying the carbon tubes within the casing of the unit itself.

ROOM CONDITIONERS OFFER UNIQUE PROBLEM

With the room conditioners, however, there is an application problem since there is rarely the space needed to install the carbon tubes within the equipment, nor is sufficient additional static available to maintain the required total fan volume. These factors can be remedied, Bartol said, through negotiation with the manufacturer.

With respect to the economics of using activated carbon air purification, Bartol pointed out that every 400 c.f.m. of recirculated air which is converted to fresh air saves about 1 ton of installed refrigeration.

Bartol Answers Questions On Activated Carbon

The paper on odor control brought forth a rather lively discussion on the subject.

"One of the worst odor problems in room air conditioners come from an apparent deposit of tobacco odors on the coil condensate," declared Herbert Laube, president of the Remington Air Conditioning Div. "This becomes particularly noticeable if there has been heavy smoking in the conditioned area, and the unit is shut off for a while, and then started up again."

The point was made that the problem with activated carbon air fresheners when used in conjunction with room air conditioners is that of providing the room cooler with the same air delivery (where the activated carbon panels are used) without the necessity of going to a much larger blower for the coil. The suggestion was made that experimental work should be carried out with various combinations used with actual room air conditioner units.

The air purification panel should be placed on the air intake side, said the speaker, in order to avoid corrosion problems.

On the matter of whether it should be placed before or after the filter, general practice would be to place it after the filter. It is possible that with use of the air purification device, a filter might not be necessary.

How often should the carbon panels be reactivated? Once every 6-8 months in a tavern or bar, once every year in a home or office, said Bartol. The panels can be returned to the manufacturers at the off-season and reactivated at nominal expense, it was stated.

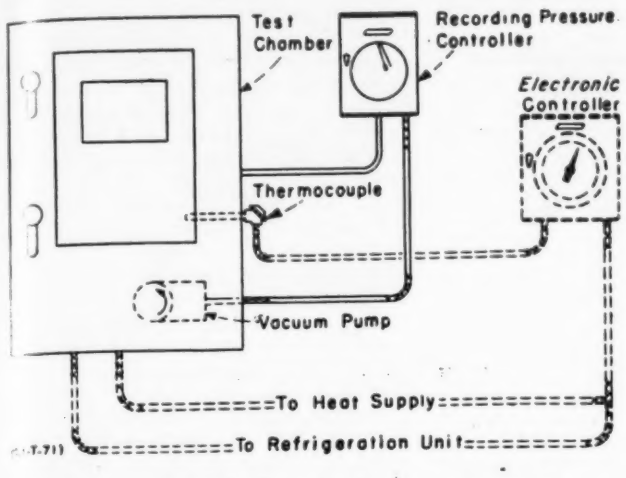


FIGURE 1: Maintenance of specific temperature or pressure.

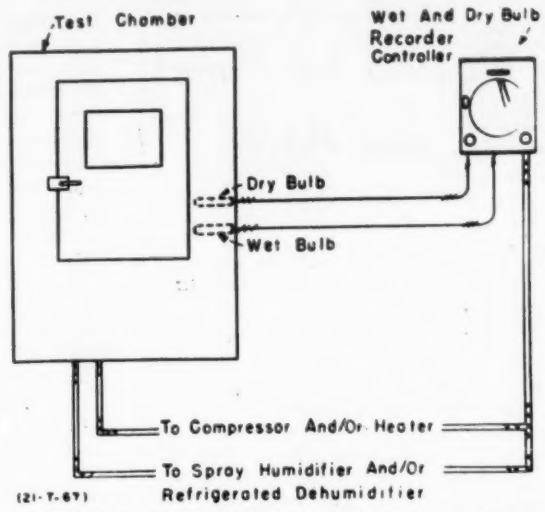


FIGURE 2: Maintenance of desired temperature and humidity.

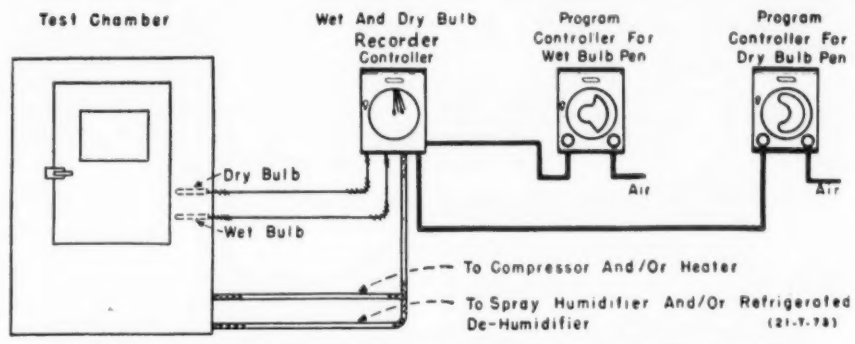


FIGURE 3: Controlled change of conditions or program control.

3 Basic Control Arrangements

Stringent Tests Required of Gov't Materials, Apparatus Crystallize Need for Accurate Setups In Test Chambers

By R. H. Brown
Development Engineer, Tenney Engineering, Inc., Newark, N. J.

Stringent tests required of government purchased apparatus and materials have crystallized the need for accurately controlled test chambers such as those manufactured by Tenney Engineering, Inc. Examples of materials and devices requiring testing are:

(1) plastics, pharmaceuticals, metals, and similar materials—which must retain definite physical and chemical properties under various ambient conditions;

(2) servo-mechanisms, flight mechanisms, and other aircraft components which must function in changing temperature and pressure;

(3) radar gear—which must operate in highly humid tropical conditions, high altitudes, and in sub-zero temperature; and

(4) radio communications and radio direction-finding equipment—which must perform effectively in all sorts of climatic conditions and altitudes.

3 Basic Control Setups

(1) Maintenance of Specific Temperature or Pressure

A control system such as that shown in Fig. 1 is generally used. Referring to Fig. 1, the recording pressure controller measures the vacuum within the test chamber. Either a bellows type absolute pressure element, a spiral element, or a mercury manometer can be used to determine the internal pressure, depending on the maximum altitude desired. Maximum altitudes of 150,000 ft. are obtainable.

In operation, the recording pressure controller switches the vacuum pump on or off in accordance with deviations of the measured pressure from the instrument set point. Since altitude is a function of barometric pressure, the recording pressure controller actually maintains the test chamber, so as to simulate the altitude corresponding to the pressure at which the set point index of the instrument is adjusted.

To facilitate setting the instrument to simulate a desired altitude, the chart is calibrated in feet altitude. When temperature is the only factor to be controlled inside the test chamber, the instrument and control system, shown dotted in Fig. 1, is employed. With this arrangement, the internal test chamber temperature is generally measured by means of a thermocouple located inside of the chamber, as shown.

The electronic controller switches the refrigeration compressor or heat supply on or off, or switches from heating to cooling in response to deviation from the temperature to be maintained, thereby holding the internal test chamber temperature constant.

Where more precise control of temperature is desired, a modulating form of control can be used. With this type of control, the control instrument provides a proportioning control action which regulates the heat supply, or the amount of coolant, as the case may be, to accurately maintain the desired temperature.

(2) Maintenance of Desired Temperature and Humidity

This arrangement is accomplished through the operation of a control system, such as that shown in Fig. 2. Using this method, the wet and dry bulb controller shown provides two distinct control actions as follows:

Deviations from the set point (established by manual adjustment of the set point index) by the dry bulb pen produce an on-off control action which interrupts the coolant and/or heat transmitted into the test chamber so as to maintain the internal temperature constantly at the desired level.

In like manner, deviations from the set point (also established by manual adjustment, in this case of the wet bulb set point index) by the wet bulb pen produce an on-off action which results in spray humidification and/or refrigerated dehumidification to maintain the desired per cent of humidity.

With the relative humidity determined by the wet bulb of the instrument in this manner, relative humidities up to 95% can be controlled and the atmosphere in the chamber will not vary over plus or minus 1° C. from the wet bulb temperature of the humidity required. As previously explained, closer control of temperature can be obtained by the use of pneumatic proportional control.

(3) Controlled Change of Conditions Or Program Control

This effect is produced by the action of a program or Time-Pattern controller, such as illustrated. This controller automatically positions the set point index of the primary controller so as to produce the desired rate of change on the controlled variable. The desired rate of change is obtained by cutting the Time-Pattern cam to form the desired program of changing conditions.

Thus, a specific rate of climb can be re-created by cutting the necessary pattern and using it on a program controller to reposition the set point index of a pressure controller. In like manner, patterns can be cut and the program controller used in conjunction with temperature and humidity controllers to simulate climatic or test changes in these two factors.

Fig. 3 represents the method of employing program control to reproduce specifically changing humidity and temperature conditions within the test chamber. In like manner, a controlled change of pressure can be reproduced by connecting the program controller to a pressure controller, as shown. This arrangement can be added to the temperature-humidity chamber illustrated. It may also be used singly, in conjunction with a controlled temperature test chamber.

Physical quality, fragility, tension, operating characteristics, and many other factors important to quality control can be readily tested through the use of accurately controlled-conditions test chambers. Such chambers are employed in laboratory and production sizes for simulating global conditions from sub-arctic to tropical for production testing, research and standardization in the fields of metals, plastics, radio, pharmaceuticals, and a host of others.

Worthington Purchases Oil City, Pa. Plant

HARRISON, N. J.—Acquisition of the land, buildings, and equipment of the National Transit Pump & Machine Co. of Oil City, Pa., was announced recently by the Worthington Pump & Machinery Corp. here.

E. J. Schwanhausser, executive vice president of Worthington, declared that his firm would take possession of the Oil City plant early in February and start operations soon after that. He indicated that Worthington would use the plant for defense work.

Sobocinksi Heads Delaware Appliance Dealers Group

WILMINGTON, Dela. — Z. W. Sobocinksi was elected president of the Electrical Appliance Dealers of Delaware at the group's annual business meeting here recently.

He succeeds B. C. Allen, who was elected vice president. W. Victor Collins and William Frederick were named secretary and treasurer, respectively.

Named to the board of directors were P. R. Dorsney, E. R. Blaine, H. H. Poole, Robert Justis, and Robert Wrightson.

Frozen Cake Thaws Out On Way to Recipient

ELMIRA, N. Y.—Frozen cakes are shipped to all parts of the world by Leslie Light, proprietor of Light's Bake Shop. They have been sent to Germany, England, Ireland, and Japan. When one of the cakes arrived by airmail in Ireland, even the Lord Mayor was on hand to admire and sample it.

Light hit upon the idea of freezing cakes before shipping about three years ago. He discovered that a certain cake recipe (which remains a secret) freezes well and retains the moisture and flavor of fresh cake.

After the cake is baked and decorated, it is wrapped in moisture, vaporproof paper and frozen in a home-type freezer at -20° F.

Just before shipping, the cake is carefully boxed and wrapped.

For long distances, Light generally uses airmail. Otherwise, the cake is sent by parcel post.

The cakes have been sent to points throughout the country by Elmira residents who want to remember friends with anniversary cakes.

Reports from recipients of the frozen cakes indicate that they taste fresh baked on arrival. Usually, the cake is just nicely thawed out by the time it reaches its destination.

While Light has shipped a wedding cake, he does not cultivate this type of business because of the danger of damage to elaborate decorations.

Light ships an average of three to five frozen cakes a week.

MISSING SOMETHING?

More and better useful information is yours for the asking. See "What's New" page.

Common Misconceptions About Heating Blasted by Panel At Joint Meeting of Detroit ASRE, ASHVE, and ASME

By C. Dale Mericle

DETROIT—Highlights of air conditioning, ventilating, radiant heating, and heating in general were given an airing before more than 200 local engineers when a panel discussion on these subjects was presented by four speakers at a joint meeting held by Detroit chapters of ASHVE, ASRE, and ASME.

At the first joint meeting of these three groups, Prof. Axel Marin discussed heating; H. Ziel of Albert Kahn Associates, ventilating; B. Pruden of Giffels & Vallet, cooling; and T. Napier Adlam of the Sarco Co., panel heating. Moderator was James Livermore of the Detroit Edison Co.

"When you talk about heating, the first thing is to define what heating is," began Prof. Marin, who was the lead-off man. "The function is to supply heat to the enclosure at the rate at which heat is lost and at the desired temperature.

"I have an acquaintance who claims he heats his house for $50 a season. He may spend only $50, but he doesn't heat his house.

"About 12 or 14 years ago the American Gas Association made a survey of 400 homes in the east all moderate size or 'average' dwellings. It was found that approximately 10% of the heat loss was through the floor, 15% through the ceiling, 20% by infiltration, 25% through glass, and 30% through the walls. The homes weren't insulated.

"The U factor of the average wall," Prof. Marin said, "is about 2.5. Insulation would reduce this to one tenth. Storm sash would save about 60% of the 25% heat loss through glass. Although a certain minimum of infiltration is necessary, the total heat loss on a house could be reduced by 50% with insulation, storm sash, and attic ventilation.

HOME MUST HAVE AIR FOR COMBUSTION

"But some people have gone to extremes," he warned. "They have tightened up the home so much that there's no air for combustion. We all know that we need a certain amount of air to burn fuel.

"There are four things to remember: have the right proportion of air and fuel; both should be thoroughly mixed; there must be enough time for mixing, and the temperature must be high enough to ignite the mixture.

"What is the ideal heating system? Well, for a small home it doesn't make much difference. With a large house don't use a gravity furnace. It wasn't designed for that purpose."

Another form of heating—the radiant or panel type—shouldn't be considered as the "ideal" system, declared Adlam of Sarco, a recognized authority on the subject.

"I've seen some that were terrible. I'd like a combination of ventilation or convection and radiant heating. I also like the idea of radiant cooling," he commented.

"When we speak of radiant heating, we should remember it's only one phase of heating and that it won't take away other forms. We shouldn't try to heat a room, but instead try to take care of the heat losses from the human body occupying that room. The body loses 190 B.t.u. per hour by radiation, 110 B.t.u. by convection, and the rest by respiration and conduction.

"Convection mustn't be overlooked," he cautioned. "Air without convection becomes stagnant. Radiant heat should be supplied to compensate only for losses by radiation. Floors can get too warm, and when they're above 80° F. there's some biological reaction.

"Radiant heating is a hobby with me. If you're installing it, remember that you're doing something for humanity so don't do it in a cheap way. Remember also," he said, "radiant heating is just one way of providing comfort."

With respect to ventilation, Ziel pointed out that while ventilating may be simply defined as the "process of supplying and removing air," there are actually "complications in its practical application."

"A simple ventilating system would be one, say, for an office in a factory where you might bring air into the office from the factory through a filter and then return it. It's just as important, however, to have an air supply if you have an exhaust.

"A good ventilating system for an office would involve temperature control, humidity control, and freedom from dusts and drafts so that the occupant is not aware of the mechanical ventilating system," Ziel explained.

In working out a ventilating system, a common approach is to determine how many air changes per hour will be required in the space, Ziel said.

"This is sometimes spoken of in terms of minutes for an air change. It is essential that air be drawn in from outdoors, although part can be recirculated in winter. It's desirable to keep outside air in winter to a minimum to reduce operating costs.

"It's also normally advisable to have exhaust systems, but you'll want to provide outlets where they'll cause no drafts or noise. With ventilating systems we don't want too great a ceiling height, but there must be space for ducts which isn't too cramped.

'PUSH-PULL SYSTEM' STUDIED

"Many industrial plants need exhaust systems to remove dust and irritants, but these can involve very difficult problems. Hoods may be desirable but sometimes these interfere with conveyors. Now being studied is the 'push-pull' system where air is supplied under pressure at one side of the work and pushed across to the exhaust intake on the other side. No hood is necessary.

"Why is it that many ventilating systems don't work? Well, fans may be running in the wrong direction," Ziel said. "Filtration problems may not have been properly solved. Dampers may not be open at the right time."

Regarding the latter, he cited one instance where louvers on the supply duct were welded shut to prevent freezing of hot water heaters during winter.

"Cooling ties in very closely with ventilation," commented Pruden, who is chief mechanical engineer of an architectural firm. "Where cooling starts in is during the summer, and it may be used for reasons of comfort or to help control industrial processes.

"The feeling of comfort is not absolute but varies with the individual and the individual's activities. There is no absolute temperature to which one can point as being ideal, partly because the amount of moisture in the air is more important than the dry bulb temperature. It's possible," Pruden reminded the group, "to produce comfort with higher dry bulb temperature and lower humidity.

"The degree of comfort, too, must vary with the duration of occupancy to avoid shock upon leaving the air conditioned space. There's another factor in cooling—you can never satisfy both men and women, and there's nothing an engineer can do about that."

QUESTIONS AND ANSWERS

Most of the questions that came up during the discussion period pertained to radiant heating, but the panel was also asked this:

"What does the future hold for high velocity air conditioning and ventilating systems?"

"Such systems employing 2,000 to 3,000 c.f.m. are being used effectively today in industrial applications where noise is no problem," Pruden said, declining to discuss the two proprietary systems using high velocity air. "It has tremendous possibilities in large installations."

Added Ziel, "A saving of space is possible with high velocity systems but space can be saved with conventional systems in many instances too, such as by installing ducts in corridors where ceiling height is not so important as in offices. Some high velocity systems work but some don't."

WHAT'S AHEAD IN RADIANT PANEL HEATING?

Among the questions on radiant heating was: "Do you think there is any future for radiant panel heating in the small home of five to six rooms?"

"I think there is," said Adlam, "but there's a tendency by some contractors to cheapen costs by merely installing a few pipes in the floor and calling it radiant heating. I've seen some good installations, however."

"Can air temperatures be lower with radiant heating systems?"

"This depends largely on the exposure losses of the room," Adlam declared.

"In a room heated by floor panels, how do you prevent a sharp rise in temperature due to solar effect?"

"That can't be prevented in any system," answered Adlam, "but there is such a problem in floor heating. It's debatable whether to use floor or ceiling panels. If you can anticipate solar effect you can compensate somewhat for it."

"Should radiant heating coils be in the floor or ceiling?"

"Personally," Adlam replied, "I prefer some floor heating, but never heat the floor above 85° F. If more heat is needed, ceiling coils should be added."

HOW TO STOP CONDENSATION?

"How do you prevent condensation on panel cooling?"

"There's only one way—dry the air so the temperature doesn't fall to the dewpoint. There is available a control which will control the temperature of the water in the panels with the humidity of the air."

"What is your opinion of reflective type wall insulation for panel heating?"

"I think it's quite good," Adlam said. "There's a question, however, of harmonizing the reflective surface with other decoration of the rooms."

"Could aluminum foil or paint be painted over and still be a good reflector?"

"A good many paints will absorb radiation."

"Should air conditioning coils be cleaned to prevent odor?"

"Yes," answered Pruden, "all coils should be cleaned because odors will collect on cold coils."

T. S. PENDERGAST
Sales Director

* * *

Universal Cooler Names--

(Concluded from Page 1, Column 3)

becoming vice president and director of sales in 1937. In 1943 he became vice president and works manager.

In 1948 he left Universal Cooler to join Hupp Corp. as sales manager of its Refrigeration Products Div. in Cleveland. Later that year he joined Baker Refrigeration Corp. as general manager, later becoming president, which post he held until last year.

During World War II Pendergast served on the Industry Advisory Committee of the War Production Board and also on the Industry Advisory Committee of the Office of Price Administration.

Detroit Mayor Favors Garbage Disposer Units

DETROIT—If Mayor Albert Cobo has his way, Detroit homes will all be equipped with garbage disposers —possibly at city expense.

Mayor Cobo, who has been a city official for many years but was just elected mayor in 1949, has long been an advocate of home garbage disposers to replace city collection of garbage, it was reported recently.

The mayor not long ago turned down a proposal by the department of public works to build a new city incinerator.

"Why should we spend more millions to carry on a completely outmoded system of garbage collection?" he asked.

He has indicated that when new budget hearings open this spring he will strongly recommend a substantial appropriation to start a program of conversion to home disposal units. He has ordered his aides to ready a detailed financing program for such a project.

"It costs the city many millions a year to collect and dispose of garbage," he argues. "The city might be able to finance conversion to approved incinerators or grinders out of the savings made in the present system of collections.

"Home disposal units cost around $100. Every unit put into operation would cut down the huge present-day cost of collections. The city could amortize the cost of home units over a period of, say 20 years."

G-E Wins Macy Suit--

(Concluded from Page 1, Column 5)

trade program or abandon it.

He noted that General Electric had been lax in enforcement prior to that time, but since the start of this suit last April, it had taken vigorous steps to maintain its fair trade prices.

Justice Greenberg said, "To refuse an injunction in this case would result in an irreparable injury to General Electric since it would in effect render all of its existing fair trade agreements unenforceable and would result in the collapse of its existing price structure.

"To grant an injunction, providing the fair trade agreements are fairly and effectively enforced, would work no hardship on Macy.

"In the interest of an equitable solution, therefore, an injunction will be granted to plaintiff, conditioned on the continuation by it of its present vigorous enforcement activity.

"This condition is intended to give Macy the greatest possible protection against any further detriment resulting from a future lapse by General Electric."

Justice Greenberg then went on to outline his "basic essentials" for an enforcement program.

JUSTICE GREENBERG TELLS G-E WHAT TO WATCH

"General Electric, as any other manufacturer or producer," he said, "should:

"1. Keep close scrutiny over prior cutting activities and other trends generally known in the industry or trade.

"2. Keep close scrutiny over prior violators and take appropriate action where indicated.

"3. Investigate and follow up complaints vigorously.

"4. Enforce fair trade prices by repeated legal action if necessary.

"5. Pursue a continuing and sustained enforcement program."

Justice Greenberg also had this to say about the extent to which manufacturers can or should go in enforcing fair trade pricing:

"Macy contends, however, that even the present enforcement program is still ineffective and inadequate; that price cutting continues; that General Electric can enforce fair trade prices only by maintaining a policing force, changing its present method of merchandising through competitive distributors having quotas to meet and by requiring distributors to refuse to sell to violators. . . .

"There is no requirement of law that General Electric maintain a special policing staff. It may divide policing activities among its regular staff.

"Nor is there any requirement that General Electric change its system of merchandising through distributors. Similarly, there is no requirement that General Electric enter into agreements with distributors to cut off violators.

"Indeed, the latter course may involve General Electric in violation of the anti-trust laws. The policy of the fair trade laws allowing vertical price fixing runs directly counter to the common law.

"It represents a small policy of the anti-trust law and the area situated in otherwise prohibited territory. Provisions for enforcement are contained in the statute. To go beyond the limits of the statute for enforcement would be to tread on dangerous ground.

"The present vigorous enforcement drive being carried on by General Electric is, in the opinion of this court, all that would be required by General Electric under the fair trade laws to enable it to enforce its agreements.

"Furthermore, the scope of the present drive appears able to contain and control any current price fixing."

A spokesman for Macy's indicated that the New York store will appeal the verdict. General Electric stated that it will continue its vigorous program of enforcement.

Murdoch Heads Application Engineering for Trion, Inc.

McKEES ROCKS, Pa.—William R. Murdock has recently been appointed manager of application engineering for Trion, Inc., here, designer and manufacturer of equipment for electrostatic cleaning and purifying of air and other gases.

Murdock attended the engineering college of the University of Iowa. He was previously associated with the American Chain & Cable Co.

Frigidaire Distributors To See 1951 Lines In Premiere to 100 Cross-Country Meetings

DAYTON — New 1951 Frigidaire household refrigerators and ranges will be shown for the first time and supporting sales, service, and advertising plans will be outlined during a national distributors meeting in Dayton, Jan. 30 and 31, according to P. M. Bratten, Frigidaire's general sales manager.

The meeting will be attended by district managers, sales managers, sales promotion managers, and service managers from 44 Frigidaire sales districts across the country.

Top factory executives will participate including Mason M. Roberts, Frigidaire's general manager and GM vice president; Bratten; L. A. Clark and H. F. Lehman, assistant general sales managers; S. M. Schweller, chief engineer; H. M. Kelley, appliance sales manager; L. W. Smith, marketing research manager; Ellsworth Gilbert, sales promotion and training manager; F. H. Peters, advertising manager; and E. E. Landis, service manager.

The Dayton meeting will be followed by a special nationwide series of 100 similar field meetings for dealers and salesmen in the latter part of February.

Motion picture and slide films will be used extensively to introduce new products and plans, together with dramatic presentations, demonstrations, chart talks, and a variety of special properties.

"Right" and "wrong" versions of basic sales techniques, especially applicable to the current situation, will be graphically portrayed in a new movie, "Two Guys Named Joe."

Bratten explained that these streamlined field meetings will be employed in lieu of the more elaborate convention-type meetings customarily conducted by Frigidaire.

Plans for the convention-type field meetings were abandoned sometime ago because of the trend of international events. Each meeting will be of four hours duration.

Fifteen factory crews will assist districts in conducting the field meetings. Also participating will be regional managers, R. H. Huston, New York City; F. M. Davison, Atlanta; H. T. Mattern, Dayton; W. G. Jennings, Dallas; and W. I. Buchanan, San Francisco.

Turning to curtailment of materials and its affect upon appliance production, Bratten stated, "We do not anticipate major cutbacks during the first quarter. Beyond that period, the amount of production will be determined by any changes in the situation."

He emphasized that Frigidaire had its biggest sales year in history during 1950. "A total of 2½ million products were turned out during 1950," he said.

Frigidaire is marketing more than 400 different sizes, types, and models of products in appliance, commercial refrigeration, and air conditioning fields.

Previously announced expansion programs both at home and in Canada are progressing as planned.

Wm. Shipley Is Dead--

(Concluded from Page 1, Column 2)

board. His experience in the industry has encompassed the whole range of modern commercial and industrial refrigeration, and the entire history of the air conditioning industry. He was a past president of the American Society of Refrigerating Engineers and the Refrigerating Machinery Association.

During World War II he gained renown as the organizer of the "York Plan" a project that resulted in the planned mobilization of all the industries in the York area for war production purposes. In 1942 he was named by Donald M. Nelson, War Production Board chairman, to head the Smaller War Plants Corp.

Shipley, who held a mechanical engineering degree from Cooper Institute, became a machinist with the York concern in 1900. From 1904 to 1907 he was a salesman of York products for the S. J. Shipley Co. of Brooklyn. For the next 20 years he served as vice president and general manager of Shipley Construction and Supply Co.

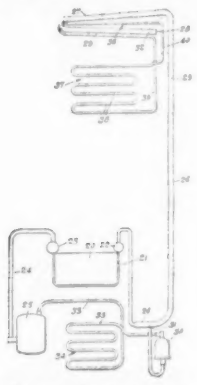
He was named vice president and general eastern manager of the York Ice Machinery Corp. (predecessor to York Corp.) in 1927. He was elected president in 1930, and in the decade during which he served in that position, he saw the company attain one of its greatest periods of growth.

MORE INFORMATION?
Use Handy Coupon
on "What's New" Page
of this Issue

PATENTS

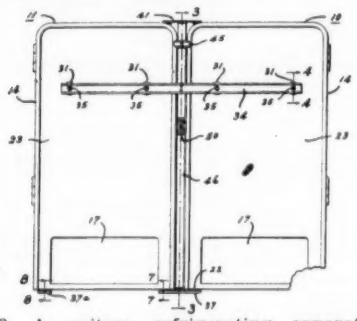
Week of Aug. 8 (Continued)

2,518,254. TWO-TEMPERATURE HOUSEHOLD REFRIGERATOR. William E. Richard, Evansville, Ind., assignor to Seeger Refrigerator Co., St. Paul Minn., a corporation of Minnesota. Application March 20, 1948, Serial No. 16,010. 16 Claims. (Cl. 62—116.)



1. In a refrigeration system, the combination of a cabinet having an outer shell, an upper liner forming a storage compartment and a lower liner forming a freezing compartment, with a motor compressor, condenser and controlling device, a freezing evaporator in the lower compartment, a second evaporator in the upper part of the storage compartment and a secondary system having evaporator coils engaging the storage liner, and having an upper condenser portion arranged to transfer heat to the second primary evaporator in the upper part of said storage chamber.

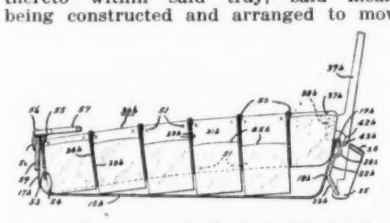
2,518,344. REFRIGERATING APPARATUS. Louis C. Luneke, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application July 6, 1948, Serial No. 37,251. 4 Claims. (Cl. 62—89.)



3. A unitary refrigerating apparatus comprising, two refrigerator cabinets positioned in side by side relationship, each of said cabinets being provided with a food storage compartment and a machine compartment, each of said cabinets having a closed refrigerating system associated therewith including an evaporator for cooling said food compartment and a refrigerant translating device mounted in said machine compartment for circulating refrigerant to and for withdrawing refrigerant from said evaporator, a brace member extending continuously from one cabinet to the other across a substantial portion of the back wall of each cabinet, a second brace member extending continuously from one cabinet to the other across a substantial portion of the bottom of each cabinet in a direction at right angle to the extention of said first named brace member, said members each being attached to said cabinets at two or more points on each cabinet to securely lock the cabinets together, and said second brace member forming a common base supporting at least a portion of each cabinet whereby the weight of one cabinet on said base serves to augment said members in preventing movement of the other cabinet relative to said one cabinet.

2,518,373. ICE TRAY AND GRID. Donald H. Reeves, Dayton, Ohio, assignor to General Motors, Corp., Dayton, Ohio, a corporation of Delaware. Application June 25, 1936, Serial No. 87,263. Renewed May 7, 1938. 18 Claims. (Cl. 62—108.5.)

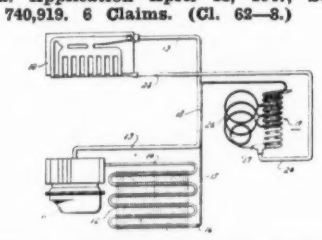
1. A freezing apparatus for liquids comprising in combination, an elongated metal tray having a grid structure removably positioned therein, said grid structure including a longitudinal wall and a plurality of transverse walls dividing the interior of said tray into a plurality of ice block compartments, certain of said grid walls being formed of opposed flexible sheet metal portions, means for elevating a portion of the grid structure together with ice blocks adhering thereto within said tray, said means being constructed and arranged to move



one of the opposed sheet metal portions of said certain grid walls relative to the other of the sheet portions thereof, while the grid structure and ice blocks are maintained in their elevated position within the tray, to extend said grid structure lengthwise of the tray for breaking the bond between said grid structure and the ice blocks, and means formed on one of the sheet metal portions of said grid walls and disposed in the path of movement of the other of said sheet metal portions relative to one another and the extension of said grid structure.

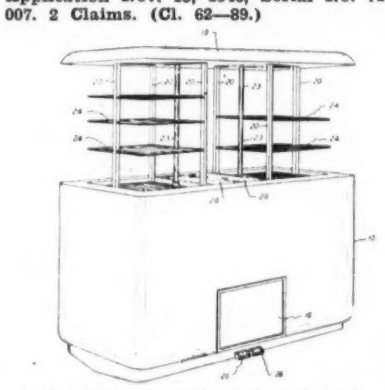
Week of Aug. 15

2,518,587. REFRIGERANT FLOW CONTROL. Elmer W. Zearfoss, Jr., Philadelphia, Pa., assignor to Philco Corp., Philadelphia, Pa., a corporation of Pennsylvania. Application April 11, 1947, Serial No. 740,919. 6 Claims. (Cl. 62—8.)



1. In a refrigerating system having a condenser and an evaporator, a restrictor tube for receiving refrigerant at condensing pressure from the condenser and for discharging a mixture of liquid and gaseous refrigerant at evaporating pressure, and conduit means disposed to receive refrigerant discharged by the restrictor tube for delivery to the evaporator, said conduit means including a pair of tubing sections with passageways therebetween providing for separation of the liquid from the gaseous refrigerant, one of said tubing sections being associated in heat exchange relationship with said tube.

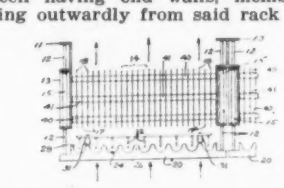
2,518,764. TABLE TOP REFRIGERATOR WITH ELEVATING INTERIOR. Hobert M. Dunlap, Jackson, Mich., assignor to The Sparks-Withington Co., Jackson, Mich., a corporation of Ohio. Application Nov. 15, 1946, Serial No. 710,007. 2 Claims. (Cl. 62—89.)



1. A table top refrigeration cabinet enclosing refrigeration compartments, inner liners defining said refrigeration compartments, a lid on said cabinet, guide posts suspended from said lid and engaging said inner liners to stabilize said lid in vertical movement, shelving mounted on said guide posts and movable with said guide posts and said lid, and telescopically operating elevating devices associated with said lid and mounted within said cabinet.

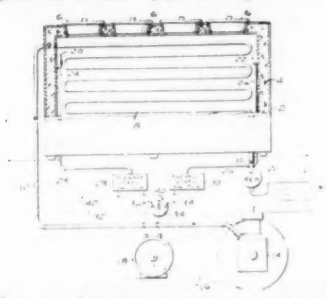
2,518,999. ELECTROSTATIC PRECIPITATOR. Earl L. Richardson, Hyde Park, Mass., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Aug. 30, 1947, Serial No. 771,557. 9 Claims. (Cl. 183—7.)

6. An electrostatic precipitator comprising a vertical supporting rack, a collector cell having end walls, members extending outwardly from said rack perpen-



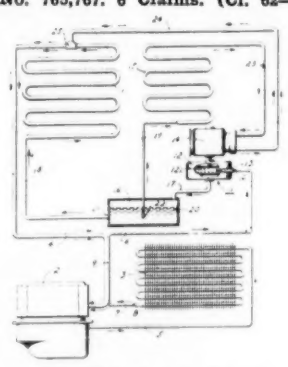
dicular thereto, said end walls having perpendicular extensions with openings therein through which said members extend, an ionizer electrode supporting frame, and members attached to said frame and slidably fitted into said first mentioned members.

2,519,006. REFRIGERATION MOTOR CONTROL. Edgar Thompson, Nolan, W. Va. Application July 23, 1947, Serial No. 762,965. 1 Claim. (Cl. 62—4.)



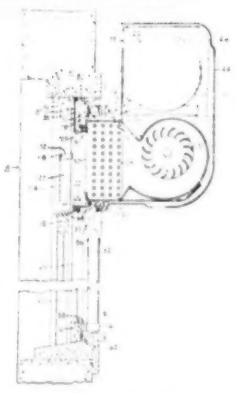
The combination with a refrigerator having a condensing unit comprising a compressor and an operating motor and electrical circuit therefore, a plurality of thermostats of different thermal ranges in the refrigerator adapted to selectively control the temperature of the refrigerator, a thermostatic responsive switch connected to each of said thermostats, a control switch having a contact for connection to each thermostatic responsive switch, interpolated in the circuit, a control lever for the switch adapted to selectively energize the contacts and actuate the thermostat connected thereto whereby the range of temperature in the refrigerator will be controlled according to the thermal range of the actuated thermostat.

2,519,010. REFRIGERATION SYSTEM AND METHOD. Elmer W. Zearfoss, Jr., Philadelphia, Pa., assignor to Philco Corp., Philadelphia, Pa., a corporation of Pennsylvania. Application Aug. 2, 1947, Serial No. 765,767. 6 Claims. (Cl. 62—115.)



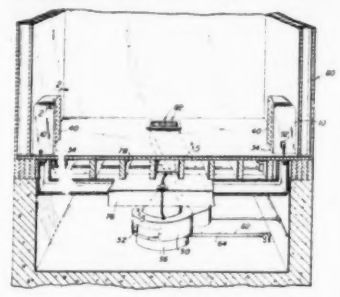
1. In a refrigerating system, an evaporator, a condensing unit, conduit means for delivering refrigerant from said evaporator to said unit, other conduit means for delivering refrigerant from said unit to said evaporator, an energy converter for transforming, into mechanical energy, part of the energy in refrigerant flowing through said conduit means, a second evaporator having communication with both conduit means, and means arranged in cooperative relationship with the second evaporator and connected with the energy converter to be driven by the mechanical energy produced thereby, to effect circulation of refrigerant through said second evaporator.

2,519,086. WINDOW MOUNTED AIR-CONDITIONING UNIT. Arthur H. Eberhart, Springfield, Mass., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa., a corporation of Pennsylvania. Application May 1, 1946, Serial No. 666,381. 7 Claims. (Cl. 98—98.)



1. The combination with a room air conditioning unit, of means for mounting the same in a window, said means comprising vertical elongated members separate from the window, resting on the bottom of the window and extending upwardly to a point adjacent the top of the window, means for mounting said unit on said vertical members adjacent the upper ends thereof with the unit disposed primarily on the room side of the vertical members, said means including parts which transmit forces directed inwardly of the room from the unit to the vertical members at points adjacent the upper ends of the latter and parts which transmit forces directed outwardly of the room from the unit to the vertical members at points spaced downwardly from the first-mentioned points but spaced above the lower ends of the vertical members, whereby the turning moment imposed on said unit by the force of gravity is transmitted to the vertical members, and means providing engagement between the lower ends of said members and the bottom of the window and between the upper ends of said members and the top of the window for resisting the turning moment imposed on the vertical members by the unit, whereby the horizontal forces imposed on the window are substantially less than the horizontal forces imposed by the unit itself.

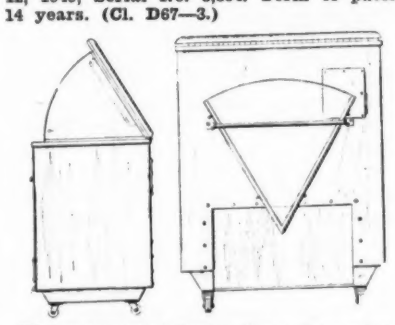
2,519,120. AIR-CONDITIONING SYSTEM. Charles E. Davis, Lake Orion, Mich. Application May 28, 1948, Serial No. 29,873. 5 Claims. (Cl. 219—39.)



1. An air conditioning system for building structures comprising a group of radiator housings, liquid holding coils mounted in each of said housings, means for heating liquid in said coils, louvers adjustably carried by each of said housings, means for directing a flow of air over the liquid holding coils, and means responsive to heat within the housings for actuating said louvers into and out of an open position, said means for directing a flow of air over the liquid holding coils comprising a fan housing and a group of air ducts extending between said radiator housing and said fan housing.

DESIGNS

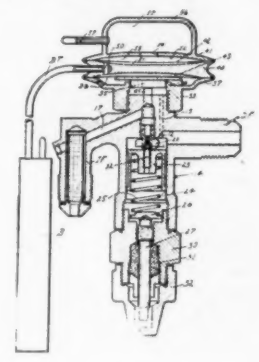
159,766. FROZEN FOOD BOX. Lovic Cyril Warren, Jr., Atlanta, Ga. Application July 12, 1949, Serial No. 3,854. Term of patent 14 years. (Cl. D67—3.)



The ornamental design for a frozen food box, as shown and described.

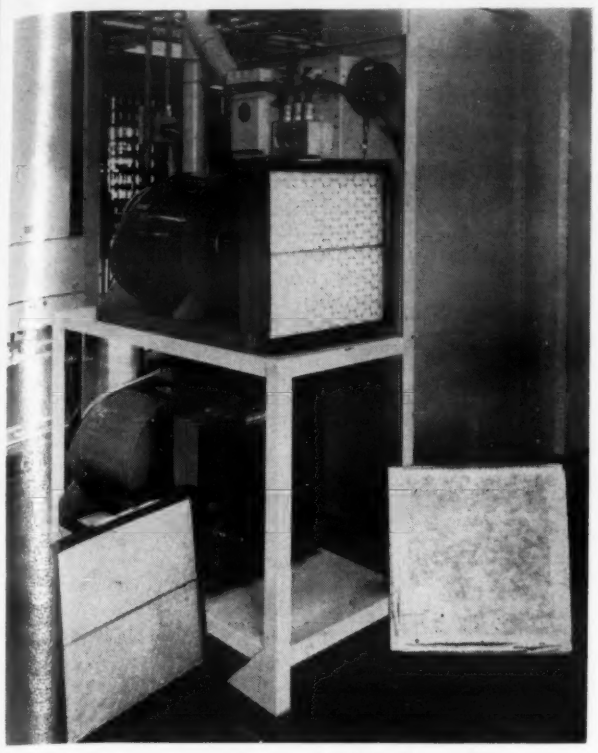
Week of Aug. 22

2,519,483. FLUID-POWERED VALVE. Harold T. Lange, Webster Groves, Mo., assignor to Sporlan Valve Co., St. Louis, Mo., a corporation of Missouri. Application Aug. 30, 1946, Serial No. 693,974. 3 Claims. (Cl. 236—92.)



1. As an article of manufacture, an attachment for connection between a thermally responsive fluid-filled bulb and associated tubing and an expansion valve of a compressor-condenser-evaporator system, the attachment including a closure for detachable mounting on the expansion valve, a disc element secured to said detachable closure, a second closure secured to said disc element at the side opposite the detachable closure ,the closures and disc element defining chambers therebetween and at opposite sides of the disc element, diaphragms secured one in each such chamber and extending thereacross to define inner spaces adjacent the disc element and outer spaces adjacent said closures, said disc element having passage means therein interconnecting with said inner spaces and with the fluid-filled bulb and associated tubing, the outer space between said second closure and an adjacent diaphragm being charged with an isolated gaseous fluid, and a buffer plate operatively mounted in the outer space adjacent said detachable closure for movement responsive to the motion of the adjacent diaphragm, said buffer plate being in motion transmitting relation to the expansion valve.

(To Be Continued)



AIR SANITATION problems were solved at the American Telephone & Telegraph repeater stations by using barrier-type filter material and activated carbon to prevent microscopic dust and eliminate sulphides from the air which cools the vacuum tubes.

• • •

Air Sanitation Aids Radio, TV Transmission

Barrier-Type Filters and Activated Carbon Lick Problem Microscopic Particles, Sulphides In Repeater Stations

NEW YORK CITY—Air sanitation plays an important part in assuring reliable reception and transmission in the nationwide network of microwave radio and television repeater stations developed by the Bell Telephone Laboratories for the American Telephone & Telegraph Co.

Microwave energy is picked up at a repeater station, amplified, and rebroadcast to the next adjacent repeater station. These radio facilities will be used to transmit broadband communication signals involving hundreds of telephone messages and will also serve to distribute television programs on a nationwide basis.

Certain vacuum tubes, either in "cavities" or exposed in each equipment frame require a steady stream of cooling air for the best operating efficiency. Each station has a single air pressure source consisting of two multistage turbine type blowers. One blower operates from commercial a.c. power. The second is a battery operated standby unit.

During the early development period of this project it was found that the temperatures within identical cavities were varying over a wide range. Investigation showed the temperature variations to be directly related to the quantity of air entering the cavities. Inspection of the cavities revealed comparatively large deposits of dirt in the air passageways and on the vacuum tubes which resulted in the restriction of air flow and gave every indication of complete stoppage under continued operation.

Analysis of the deposited dirt showed two conditions. First, that the dirt was coagulation of microscopic particles; and second, that sulphides in the air were combining with the silver plating of the inner cavity surfaces to produce silver sulphide. The total result was a flaky layer composed of dirt and silver sulphide.

MICROSCOPIC DIRT NOT CAUGHT BY ORIGINAL BLOWERS

Although the initial design of blowers provided two impingement type glass filters, these were only capable of removing the heavier dirt particles and were for all practical purposes useless for removing the miscroscopic particles which were combining and being deposited in the small passageways where the air traveled at higher speeds.

The necessity of correcting this situation led to the introduction of an efficient barrier type of filter material immediately after the impingement filter. This material known as "Filter Down" is obtained from the American Air Filter Corp. and has produced results in this application comparable to that which would be expected of electrostatic filters.

SULPHIDES REMOVED FROM AIR BEFORE DISTRIBUTION

These measures solved the dirt problem and the solution to the second problem appeared to be one of supplying air free from sulphides. The W. B. Connor Engineering Corp., specialists in air purification problems, devised a filter which effectively removed the sulphides from the air before being distributed to the various vacuum tubes. The filter consisted of a bed of activated carbon 1½ in. thick, held between two meshed screens and supported in a frame of such size that it could be directly substituted for one of the two impingement type filters originally used in the blowers.

The blower system has a maximum capacity of approximately 40 c.f.m. operating against a total static pressure of 5-in. water gauge. When operating at this capacity it is expected that there will be less than ½ in. pressure drop across the combined filters.

The combination of standard dust filters, the Filter Down barrier, and an activated carbon adsorber successfully solved this air sanitation problem in microwave radio repeater stations making an essential contribution to the successful operation of this new communication facility.

Mann Given Additional Territory by Tekni-Craft

NEW YORK CITY—Mann Refrigeration Supply Co. here has been given additional territory by Tekni-Craft Co. for the distribution of its ice cream freezers, reports S. G. Coron of the Mann company.

With the additional territory Mann now covers the following counties for Tekni-Craft: Richmond, Kings, Queens, Nassau, Suffolk, Westchester, Rockland, Putnam, Orange, New York, Bronx, Schoharie, Albany, Rensselaer, Dutchess, Ulster, Greene, Columbia, Delaware, and Sullivan.

Here's How Sales Mgrs. Can Readjust Programs To Meet Emergency

NEW YORK CITY—A six-point program designed to help sales managers operate during the present emergency has been drawn up by J. L. Walker, management consultant. He said sales executives should:

1. Consider replacements who might be needed and draw up a manpower table of anticipated losses to the government service.
2. Analyze territory in preparation for possible reduction in territory requiring personal calls.
3. Analyze business volume for each account for the past year in preparation for percentage allocations.
4. Plan to reduce immediately the frequency of salesman's calls, and start to retrain salesmen as public relations representatives of the company.
5. Consider product changes for possible replacements of limited items to maintain volume and profit margins.
6. Analyze earnings of salesmen to find out if commission salesmen can be placed on salary plus bonus, based on joint gross volume instead of individual volume.

Walker also advised management to take these steps to protect employes in the event wage and salary controls are put into effect; prepare detailed job descriptions for each job; classify all jobs into related groups, including clerical, sales supervisory, and managerial; and establish a compensation schedule for each group, showing the ranges possible for each job and all possible increments.

He further suggested that sales executives prepare special schedules indicating progression rates for trainees subject to review quarterly; and that they indicate the nature of the merit rating reviews used as a basis for merit increases, showing definite system and policy for all employes.

100 Direct-Drive Air Conditioners Ordered For Intercity Bus Line

SYRACUSE, N. Y.—One hundred new Carrier bus air conditioning units have been ordered by ACF Brill Co. for installation in intercity buses.

The units are of a special type worked out by Carrier Corp. in cooperation with the Brill Co. More than 2,000 Brill-manufactured buses already in use with various buslines are equipped with Carrier air conditioning.

A principal feature of the installation designed for the Brill Co. is a system for operating the refrigeration compressor by direct belt and pulley drive from the main bus engine. This eliminates the weight and maintenance of the auxiliary gasoline engine commonly used to drive the compressor, it was pointed out.

"Since weight is an important factor in the amount of fuel consumed and the size of bus engine required, the compressor and other parts of the air conditioning system are made of aluminum wherever possible," Carrier said. "Use of this light metal has cut the total weight of the system to something less than 600 lbs."

The Carrier system provides automatic control built into the refrigeration circuit to increase or decrease the cooling effect according to the amount needed. It has a maximum capacity of about five tons of refrigeration to meet extreme summer temperatures and humidities.

A system of heating coils is included to raise the air to the exact temperature level desired after it has been cooled and dehumidified by passage over the refrigeration coils. The heating coils are connected to the bus engine radiator, and the heat they produce is governed automatically by a thermostat inside the bus, which controls the flow of warm water through the coils.

The conditioned air enters the passenger compartment via a system of vents designed to distribute it evenly throughout the bus. The unit is capable of sending air into the bus at the rate of about 1,500 c.f.m., a flow of large enough proportions to replace the air in the passenger compartment once every minute.

Research May Have Found New Joint Sealer

Air Bubbling Through 'Permafil' Keeps It Soft

SCHENECTADY, N. Y. — A material which remains liquid as long as a stream of air bubbles through it, but which hardens in a few minutes when away from air, has been developed in the chemistry divisions of the General Electric Research Laboratory.

Its properties are thus opposite to those of paint, which hardens when exposed to air.

According to Dr. C. G. Suits, G-E vice president and director of research, this new material is able to penetrate extremely small cracks before hardening.

Thus, a possible application is a tight seal for stopping nearly invisible leaks, or a "pipe dope" for sealing threaded unions.

They call the substance "anaerobic permafil." The term "anaerobic," means "non-airliving." It is used by bacteriologists to designate organisms that remain inactive in the presence of air, but which thrive and propagate when air is absent.

Ananerobic permafil is the latest in a series of related compounds called "permafils," which the G-E chemists have developed, said Dr. Suits.

CHECKING substance here are B. W. Nordlander (left) and Dr. R. E. Burnett, who developed it.

Anaerobic permafil, explained Dr. Suits, remains liquid as long as it is aerated. When away from air it solidifies quickly, without heating, or adding catalysts and accelerators.

When two metal strips are coated lightly with it and clamped together the joint will support 10 lbs. after 10 minutes. After 20 hours, it will hold 100 lbs.

If still faster hardening is desired, the permafil may be heated up to 212° F., and will harden in a minute or less.

The chemists found that certain metals, such as copper, iron, and silver solder, quicken the hardening process, even at room temperature.

Dr. Suits said that one proposed use of anaerobic permafil is to eliminate the lock nut needed to hold another nut tightly on a bolt.

A few drops are placed on the threads of the bolt just before the nut is screwed on.

Another use is for sealing against leaks. The permafil may be applied to threaded joints in pipes, where the liquid penetrates into the crevices and then hardens. Also, if painted on porous castings, it enters the pores and renders the casting airtight.

Dr. Suits said that anaerobic permafil is still being experimented with and thus far only limited laboratory quantities have been produced. It is not yet available commercially, he stated. Plans are being made to put it on the market at a later date.

Dallas Show Ready--

(Concluded from Page 1, Column 2)

general chairman of the conference, has announced.

The Dallas show and conference will be staged in the Agricultural building at the State Fair Grounds. Conference headquarters will be in the Baker hotel.

The exhibition will be open during the following hours:

Friday: 1 to 5 p.m. and 7 to 10 p.m.

Saturday: 10 a.m. to 5 p.m.

Sunday: Noon to 4 p.m.

The speaking program, which will be started off each day by an "Information Please" period, is as follows:

"Safety for the Refrigeration Service Engineer"—George J. Schuld, Sr., international safety director, RSES.

"Removing Moisture from Refrigerating Systems in the Field"—F. Y. Carter, chief sales engineer, Detroit Lubricator Co.

"Methods of Defrosting Commercial Refrigerating Equipment"—R. H. Luscombe, sales manager, Penn Electric Switch Co.

"New Types of Problems Involved In Open Self-Service Refrigeration Equipment," John H. Spence, service manager, Hussmann Refrigeration, Inc.

"Approved by Underwriters," A. J. Bommer, Underwriters' Laboratories.

"The New B9.1 National Safety Code for Mechanical Refrigeration," Cyrus W. Miller, executive secretary, Refrigeration Industry Safety Advisory Committee.

The following firms are furnishing educational exhibits at Dallas:

A. P. Controls Corp. (Automatic Products); Airserco Mfg. Co., Inc.; Alco Valve Co.; Aminco Refrigeration Products Co.; Ansul Chemical Co.

Brunner Mfg. Co.; Bush Mfg. Co.; Copeland Refrigeration Corp.; Curtis Refrigerating Machine Div.; Cutler-Hammer, Inc.

Davison Chemical Corp.; Dayton Rubber Co.; Detroit Lubricator Co.; Ebco Mfg. Co.; Eston Chemicals, Inc.

Federal Refrigerator Mfg. Co.; Fine Products Co.; Fogel Refrigerator Co.; Gates Rubber Co.; General Controls Co.; General Electric Co.; L. H. Gilmer Co.

Halstead & Mitchell; Heat-X-Changer Co., Inc.; Henry Valve Co.; Holsclaw Bros., Inc.; Imperial Brass Mfg. Co.; Jarrow Products.

Kerotest Mfg. Co.; Kold-Hold Mfg. Co.; Kramer Trenton Co.; Larkin Coils, Inc.; Lehigh Mfg. Co.; Louden Mfg. & Sales, Inc.; Lynch Corp.

James P. Marsh Corp.; Mitchell Mfg. Co.; Mueller Brass Co.; McIntire Connector Co.; Nash-Kelvinator Corp.

Pacific Lumber Co.; Penn Electric Switch Co.; Ranco Inc.; Remco, Inc.; Refrigeration Engineering, Inc.

Servel, Inc.; Sporlan Valve Co.; Standard Refrigeration Co.; Superior Valve & Fittings Co.; Swift Mfg. Co.

Temprite Products Corp.; Tecumseh Products Co.; Typhoon Air Conditioning Co., Inc.; United Frigurator Engineers; Universal Cooler Div., Tecumseh Products Co.; Virginia Smelting Co.

Wabash Mfg. Co.; Wagner Electric Corp.; White-Rodgers Electric Co.; Wolverine Tube Div. of Calumet & Hecla Consolidated Copper Co.; Wagner Tool & Supply Corp.

Details on Commercial Building Ban--

(Concluded from Page 1, Column 4)

ency cases will new starts be allowed prior to Feb. 15.

Small construction jobs costing less than $5,000 in one year whether new construction or alterations to an existing structure, are not covered by the new regulation. Neither is reconstruction of buildings after a fire, flood, storm, disaster, act of God, or act of war, nor construction by or for the Department of Defense or Atomic Energy Commission.

The new regulation is an amendment to the NPA's order M-4 which previously listed a number of types of structures—principally of the amusement variety—on which new construction was prohibited entirely.

Types of buildings for which NPA authorization will be required after Feb. 15 are banking, credit, and brokerage establishments; community or neighborhood buildings; personal service establishments such as barber shops and gas stations; hotels, motels, tourist camps and the like; loft buildings, office buildings, outdoor advertising signs; printing or duplicating establishments; restaurants; storage, distribution, display, or sale of consumer goods; and storage warehouses for personal effects.

Violation of the order will be considered a crime punishable by fine and/or imprisonment.

The NPA stated that the "construction prohibited generally does not further the defense effort, either indirectly or directly, and does not increase the nation's production capacity for defense."

"Construction," according to the NPA, "means the erection of any building, structure, or project, or addition or extension thereto, or alteration thereof, through the incorporation-in-place on the site of materials which are to be an integral and permanent part of the building, structure, or project."

A start was defined as incorporating into a building, structure, or project "a substantial quantity of materials which are to be an integral and permanent part of such building, structure, or project (for example, the pouring or placing of footings or other foundations)."

Deadline for starts was established as midnight, Jan. 13, 1951.

Reason for the action was given as the necessity to "conserve critical materials and services needed for the defense program."

The NPA said that any communications in regard to this construction order should be directed to one of the regional offices of the U. S. Department of Commerce.

These offices are located in Boston, New York City, Philadelphia, Cleveland, Chicago, Atlanta, St. Louis, Kansas City, Dallas, Minneapolis, Denver, Seattle, Los Angeles, and San Franoisco.

The NPA's lists of prohibited construction and construction on which authorization is required follow:

WHAT TYPE CONSTRUCTION IS PROHIBITED

List A. Prohibited construction. All buildings, structures or projects to be used for, or in connection with, any recreational, amusement, or entertainment purpose, whether public or private (unless authorized pursuant to Section 71.6) including, but not limited to:

Amphitheater.
Amusement arcade.
Amusement device built into place on the site such as a roller coaster, merry-go-round, or similar device or kind. This shall not include demountable or portable equipment.
Amusement park.
Arena.
Assembly hall used primarily for recreation or amusement.
Athletic field house.
Band stand.
Bars and buildings or structures where the predominant business carried out therein or in connection therewith shall be the sale for consumption on the premises of alcoholic liquors.
A baseball park.
Bath house.
Billiard or pool parlor.
Bleachers and similar seating arrangements when they are built in place as a permanent part of the building, structure, or project.
Boardwalk used primarily for recreation or amusement.
Boat or canoe club.
Bowling alley establishment.
Cabana.
Camp (except for public or social welfare).
Carnival.
Club building except for social welfare purposes.
Country club.
Dance hall.
Dance studio.
Dude ranch used primarily for recreation or amusement.
Exposition or exhibition building or structure of recreational, amusement, or entertainment displays or purposes.
Flood lighting (including piers, poles, towers, framework, or foundation with fixed equipment) in connection with any recreational, amusement, or entertainment purpose.
Gambling establishment.
Golf course.
Golf club.
Golf driving range.
Grandstand.
Gymnasium (except where it is a part of an educational institution and is to be used primarily for instructional purposes in physical education and training).
Lodge hall.
Music shell.
Night club.
Pier used primarily for recreation or amusement.
Race track, any kind.
Riding academy.
Rodeo.
Shooting gallery.
Skating rink.
Ski lodge.
Slot machine establishment.
Swimming pool (except where it is a part of an educational institution and is to be used primarily for instructional purposes in physical education and training).
Theater, any kind (including drive-in theater).
Yacht basin or marine railway primarily for the use of pleasure craft.

WHERE NPA AUTHORIZATION IS REQUIRED

List B. Construction where NPA authorization is required. Any building, structure, or project to be used for, or in connection with, any of the following specified purposes:

Bank, credit institution, or brokerage establishment.
Community or neighborhood building.
Furnishing of personal services (e.g., barber shop, beauty shop, undertaking and mortuary establishment, cemetery building, mausoleum, crematory, garage, service station, shoe repair shop, laundry, dry cleaning establishment, tailor shop).
Hotel, motel, motor court, tourist camp, trailer camp.
Loft building.
Office building.
Outdoor advertising sign.
Printing or duplicating establishment.
Restaurant.
Storage, distribution, display or sale of consumer goods (for example, retail store, shopping center, wholesale establishment, gasoline filling station, drugstore, soda fountain, florist shop, greenhouse), except wholesale food establishment, wholesale supply facility for fuel oil, gasoline or coal, gas distribution system, pipeline.
Storage warehouse for personal effects.